US Army Corps
of Engineers
Kansas City District

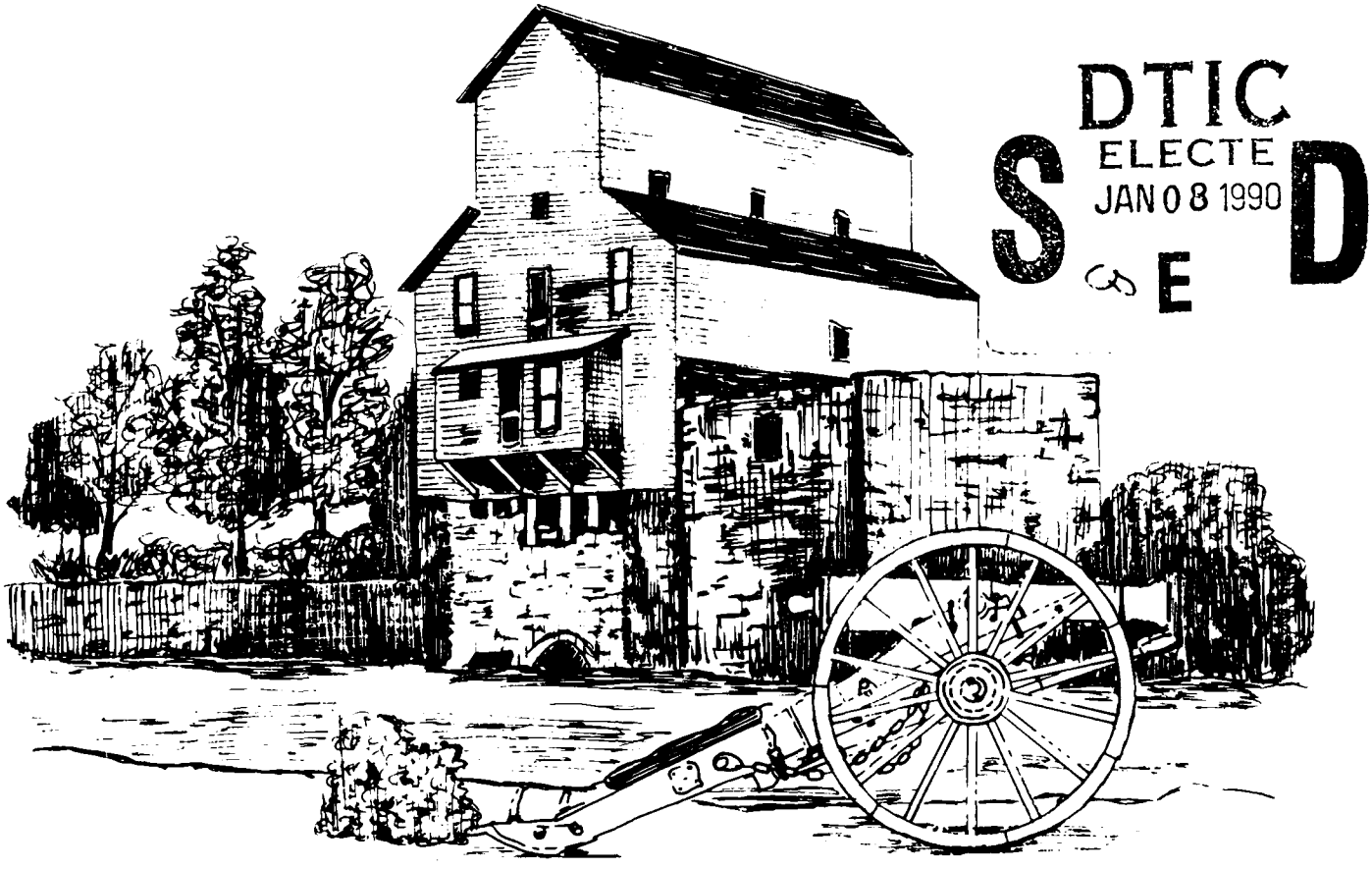
Downstream Stockton and
Harry S. Truman Dam and
Reservoir Project, Missouri

Historic Preservation Associates
Fayetteville, Arkansas 72702

Owen's Mill and the Alleged Civil War Site

National Register Assessment of Two Historic Sites in Southwest Missouri

Contract No. DACW41-83-M-0568



By:
Timothy C. Klinger
David C. Quin
Roy J. Cochran, Jr.

1989

OWEN'S MILL AND THE ALLEGED CIVIL WAR SITE

National Register Assessment of two historic sites
in Southwest Missouri

by

Timothy C. Klinger

David C. Quin

Roy J. Cochran, Jr.

Historic Preservation Associates
P.O. Box 1064
301 West Mountain Street
Fayetteville, Arkansas 72702

1989

Historic Preservation Associates Reports 84-3

Report submitted to
U.S. Army Corps of Engineers, Kansas City District,
in accordance with Contract No. DACW41-83-M-0568

The Corps of Engineers contracted with Historic Preservation Associates for this Downstream Stockton Study. The Corps may not necessarily agree with the contents of this report in its entirety. The report reflects the professional views of the Contractor who is responsible for collection of the data, analysis, conclusions and recommendations.

The Contractor designated a study team to make the investigation and the study team has drawn conclusions regarding the effects of power generation on the Sac River downstream of Stockton Dam. Since the Corps does not desire to interfere with the professional independence of the study team, those conclusions remain in the study. However, it should be noted that the Corps does not necessarily agree with conclusions of the study team regarding the effects of power generation.

UNCLASSIFIED
SECURITY CLASSIFICATION OF THIS PAGE

REPORT DOCUMENTATION PAGE

Form Approved OMB No. 0704-0188

1a. REPORT SECURITY CLASSIFICATION: Unclassified

1b. RESTRICTIVE MARKINGS:

2a. SECURITY CLASSIFICATION AUTHORITY:

2b. DECLASSIFICATION / DOWNGRADING SCHEDULE:

3. DISTRIBUTION / AVAILABILITY OF REPORT: Approved for public release; distribution is unlimited

4. PERFORMING ORGANIZATION REPORT NUMBER(S):

5. MONITORING ORGANIZATION REPORT NUMBER(S):

6a. NAME OF PERFORMING ORGANIZATION: Historic Preservation Associates

6b. OFFICE SYMBOL (If applicable):

7a. NAME OF MONITORING ORGANIZATION:

6c. ADDRESS (City, State, and ZIP Code): P.O. Box 1064
301 West Mountain Street
Fayetteville, Arkansas 72702

7b. ADDRESS (City, State, and ZIP Code):

8a. NAME OF FUNDING / SPONSORING ORGANIZATION: US Army Engineering District

8b. OFFICE SYMBOL (If applicable): CEMRKPD-R

9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER: DACW41-83-M-0568

8c. ADDRESS (City, State, and ZIP Code): 700 Federal Bldg. 601 East 12th Street
Kansas City, Missouri 64106-2896

10. SOURCE OF FUNDING NUMBERS

PROGRAM ELEMENT NO.	PROJECT NO.	TASK NO.	WORK UNIT ACCESSION NO.

11. TITLE (Include Security Classification): Owen's Mill and the Alleged Civil War Site
National Register Assessment of two historic sites in Southwest Missouri.

12. PERSONAL AUTHOR(S): Timothy C. Klinger, David C. Quin, Roy J. Cochran, Jr.

13a. TYPE OF REPORT	13b. TIME COVERED	14. DATE OF REPORT (Year, Month, Day)	15. PAGE COUNT
Final	FROM 1983 TO 1984	1989	72

16. SUPPLEMENTARY NOTATION:

17. COSATI CODES		
FIELD	GROUP	SUB-GROUP

18. SUBJECT TERMS (Continue on reverse if necessary and identify by block number): civil war; owen's mill; historic sites; Harry S. Truman Dam and Reservoir, Mo.; Stockton Lake, Mo.

19. ABSTRACT (Continue on reverse if necessary and identify by block number)

This report presents in detail the results of site visits, interviews, and documentary research relating to Owen's Mill in Cedar County, Missouri and an alleged Civil War site in St. Clair County, Missouri. Owen's Mill is located on the left bank of Bear Creek just downstream of the Stockton Lake Project. The alleged Civil War site overlooks the Sac River within the Harry S. Truman Dam and Reservoir. The term "alleged" is included in the name of this site because only local tradition suggests a Civil War artillery association, also referred to as the Reed Site. A National Register assessment was made on both sites.

Keywords: Historic sites, CEDC

use single quotes

20. DISTRIBUTION / AVAILABILITY OF ABSTRACT: ☐ UNCLASSIFIED/UNLIMITED ☒ SAME AS RPT. ☐ DTIC USERS

21. ABSTRACT SECURITY CLASSIFICATION: Unclassified

22a. NAME OF RESPONSIBLE INDIVIDUAL: Planning Division, Environmental Res. Br.

22b. TELEPHONE (Include Area Code): 816 / 426-3402

22c. OFFICE SYMBOL: CEMRKPD-R

DD Form 1473, JUN 86 — Previous editions are obsolete.

SECURITY CLASSIFICATION OF THIS PAGE
UNCLASSIFIED

ABSTRACT

The investigations described in this report focus on National Register of Historic Places assessments of an Alleged Civil War site (23SR1044) and the 19th century Owen's Mill (23CE393). No available data support a Civil War association for the series of excavated features along a bluff line of the Sac River. No further cultural resources work is recommended for 23SR1044. Substantial foundations of the original Owen's Mill, the mill dam itself and at least one 19th century structure associated with the mill community of Akard, Missouri remain as above ground evidence of this one time center of local commerce. Also preserved are a series of mill photographs, part of the mill ledger and its store day book. While no archeological excavations were conducted in the area, it is anticipated that extensive deposits remain in situ. National Register nomination is recommended for Owen's Mill. A mitigation program is also outlined.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

BACKGROUND AND PURPOSE OF THE REPORT

In March 1983, the Kansas City District of the U. S. Army Corps of Engineers (COE) solicited quotes for National Register assessments of Owen's Mill (23CE393) located in Cedar County, Missouri and of an Alleged Civil War site (23SR1044) located in St. Clair County, Missouri. On 23 March 1983, Historic Preservation Associates (HPA) forwarded its quotation to the Kansas City District. Purchase Order DACW41-83-M-0568 was issued on 14 April 1983 and was received by HPA on 26 April 1983.

The purpose of this report is to present in detail the results of our on site visits, interviews and documentary research relating to Owen's Mill and the Alleged Civil War site as required by the contract's Scope of Work . The structure and content of this report adhere to the guidelines contained in The Management of Archeological Resources: The Airlie House Report (McGimsey and Davis 1977) and to those issued by the Missouri Office of Historic Preservation (1978).

Project Locations and Dates of Investigations

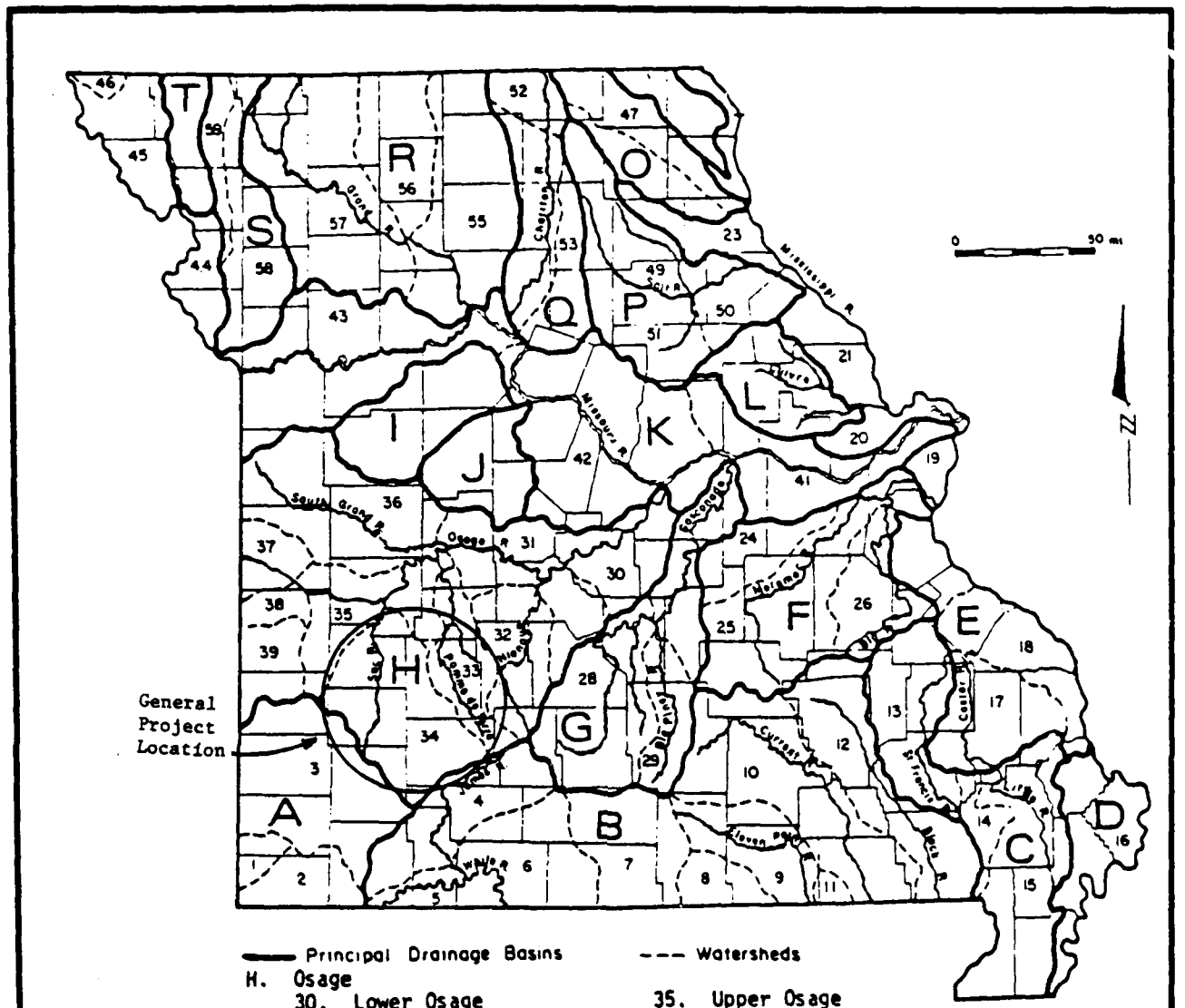
The two project areas are both situated in west central Missouri. Owen's Mill is located on the left bank of Bear Creek just downstream of the District's Stockton Lake Project. The Alleged Civil War site overlooks the Sac River within the Harry S. Truman Dam and Reservoir Project. Both sites are located within the Sac portion (number 34) of Missouri's Osage watershed (Figure 1). The investigations were begun 10 May 1983 with a draft report submitted to the District in early September 1983.

Project Sponsor and Participants

The overall project sponsor is the Kansas City District of the U.S. Army Corps of Engineers. Historic Preservation Associates has carried out the work reported on here. Mr. Timothy C. Klinger served as Principal Investigator. Mr. David Quin and Mr. Roy J. Cochran, Jr. conducted much of the basic research as well as the field work (Appendix). Others who aided the investigations include Mr. Dick Hobbs, Mr. James Lower, Mr. Wilbur Miller, Mr. Dick Bullard, Mr. John Owen, Mr. John Mills, Mr. Richard Reed and Ms. Sheri Quin.

ALLEGED CIVIL WAR SITE

The term "alleged" is included in the name of this site because only local tradition suggests a Civil War artillery association. It has also been referred to as the Reed Site.



MISSOURI WATERSHED

SCALE: as shown	Contract No. DACW41-83-M-0568	DRAWN BY
DATE: 20 Jan 1984		

General location of sites in relation to Missouri watersheds

Base map Missouri Dept. of Natural Resources — Figure 1

Environmental Setting

The Alleged Civil War site (23SR1044) is situated on top of a high bluff approximately 125 feet above the Sac River in St. Clair County, Missouri (Figure 2) within the Harry S. Truman Dam and Reservoir Project. It consists of a number of shallow depressions and level excavations that face the river.

Soils in the project area are primarily of the Goss Series, a deep, well-drained cherty matrix formed in colluvium from parent limestone. The surface layer is a dark, grayish brown cherty silt loam 6 in (15 cm) thick. It is underlaid by a brown cherty silt loam 13 in (33cm) thick, followed by a 44 in (112 cm) thick reddish brown to red and yellowish brown cherty silt clay subsoil. The substratum is a light gray clay. Slopes range from 2% to 45% (Soil Conservation Service 1980). Adjacent to these soils is the Collinsville Series of shallow, well drained, permeable upland soils. The surface layer is a very dark grayish brown fine sandy loam followed by a brown fine sandy loam which is underlaid by sandstone (Soil Conservation Service 1982).

The soil mantle on the bluff, however, is very thin, as extensive deposits of sandstone lie near and on the surface. This undoubtedly inhibits tree growth, particularly along the edge of the bluff. The area would have served well for gun emplacements, as there would be little vegetation to clear and the sandstone would provide a good base for artillery pieces.

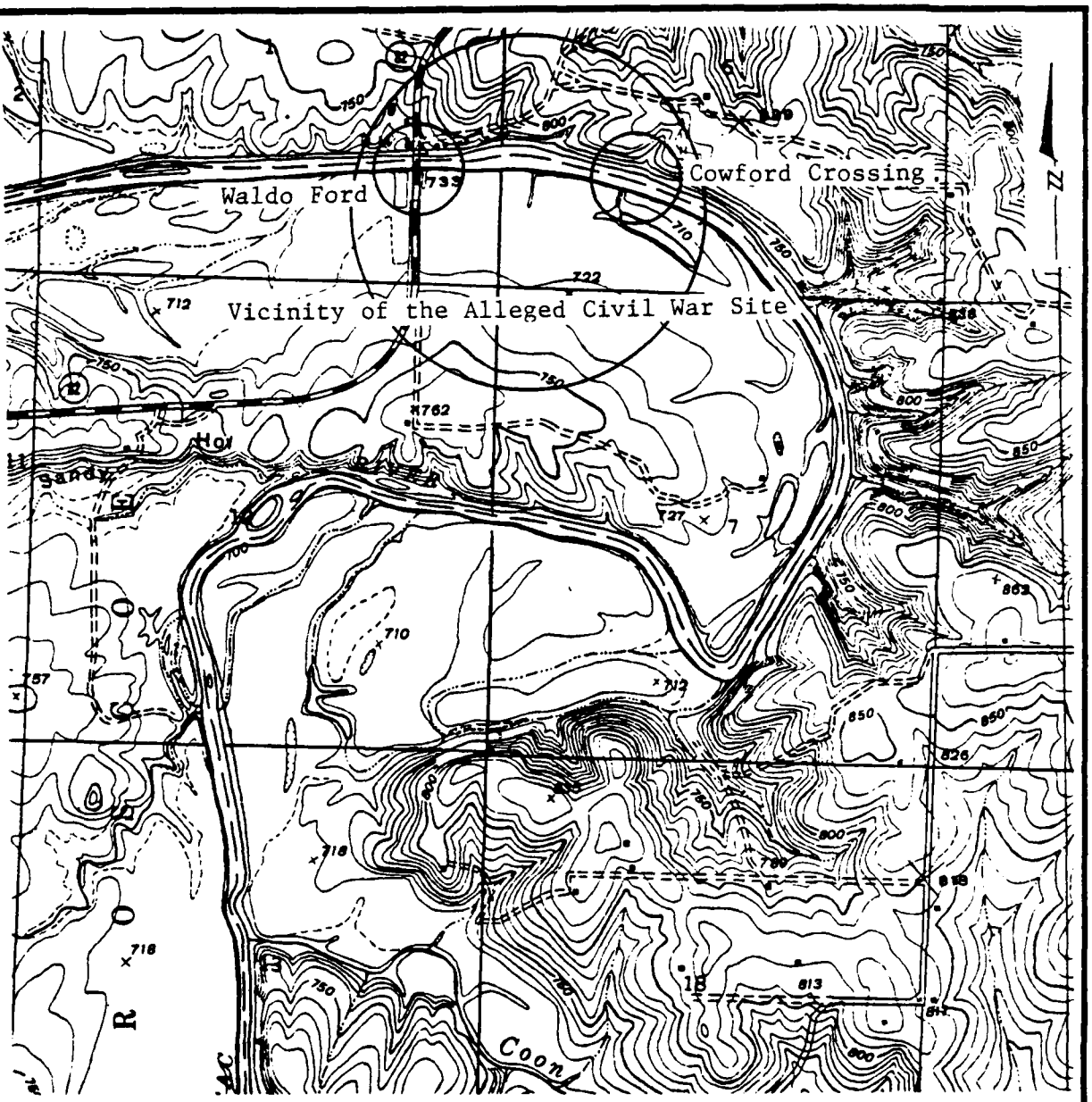
Vegetation on the bluff consists of deciduous forest with blackjack oak being the most common. Interspaced among the oaks are various types of hickory and some conifers. Understory vegetation includes poison oak, poison ivy, bluestem and Indian grasses.

Previous Investigations

The site was examined by Kansas City District personnel in 1978 (U.S. Army Corps of Engineers 1978). A biface fragment and other chipped stone artifacts were observed on the surface, indicating a prehistoric component possibly related to 23SR410, which is located farther away from the bluffs; no historic artifacts were observed. Mr. Reed, the former landowner, pointed out a series of level excavations along the bluff and a linear depression connecting a lake to the river in the valley below.

Mr. Reed suggested to the District that cannons and mortars were placed in these excavations during the Civil War. He added that a large cannon called "Old Sac" was installed in one of the depressions (our Feature 3) and directed toward a river crossing. Mr. Reed was reported to have a piece of metal which he believes to be a part of this weapon (U. S. Army Corps of Engineers 1978). Even though Old Sacramento was in the vicinity at this time, Reed's piece is not likely a part of the cannon, as it participated in the Battle of Pea Ridge soon afterward.

Subsequent investigations consisted of a taped interview with Mr. Reed in 1978 (Sprunk and Hendrickson 1980:213-216). Mr. Reed noted that the features had been discovered by his father in 1948



REED SITE VICINITY

DATE: 20 Jan 1984	Contract No. DACW41-83-M-0568	DRAWN BY
General vicinity of the Alleged Civil War site (Reed site)		
Base map Vista USGS 7½' quadrangle		Figure 2

and that interest in them had been revived by Civil War celebrations of the 1960s. He also identified the river crossings that the emplacements overlooked as being Cowford Crossing and Waldo Ford. Mr. Reed stated that the site appeared to be in the same condition as in 1948 and that it had probably changed very little since the Civil War.

Methodology

Documentary research focused on three aspects of the Civil War. First, a general overview of the Civil War as it related to this area was accomplished. This provided important information as to the types of artillery which were in the area at the time. Second, a detailed analysis of documents relating to the Civil War in the immediate vicinity was undertaken. Finally, military manuals were referenced in order to establish the important attributes of the artillery available in the area. Data were collected regarding the area occupied by each piece when it was employed, its range, and the manner in which it was typically emplaced.

Several examinations of the site were accomplished, once with the aid of Mr. Reed. Each feature was mapped, measured and photographed. Metal detecting was conducted in and around the features. This was required to establish the nature of the features and determine if they **could** have been used as artillery emplacements. Several residents of the area, Civil War historians and local informants were also consulted.

A number of other individuals were consulted in regard to the Alleged Civil War site. Homer Reed (Richard Reed's father) and John Mills, a local historian, supplemented and verified the information provided by Richard Reed. Calvin Kinzer, Civil War historian at Prairie Grove (Arkansas) State Park and Dr. Jack Hudson, military historian at the University of Arkansas, Fayetteville, were also consulted.

Dr. Hudson checked the index of the Official Records and found the only references to the Osceola area to be in Series I, Volume III where Lane shelled the town on 22 September 1861 and in Series I Volume XIII where a skirmish is mentioned for 27 May 1862. Neither of these actions would be considered of the scale which would have involved the construction of gun emplacements.

The Official Records also provided copies of many of the orders issued by General Price in the area. While these contain a great deal of information, there was no reference to artillery in the vicinity.

Several documentary sources provided similarly negative results. These include the Atlas to accompany the official records of the Union and Confederate armies, the Osceola Public Library and the St. Clair County Courthouse. The 1834 Government Land Office survey, 1908 plat maps, as well as current and superseded USGS quad maps were also examined without success. The Bulletin of the Missouri Historical Society (Volumes 1-36; 1944-1980) and the Missouri Historical Review (Volumes 1-76; 1906-1982) held only one article on St. Clair County (Shoemaker 1960).

Historic Background

The American Civil War in Missouri began long before the firing on Fort Sumter on 12 April 1861. While no major battles or skirmishes took place, there were numerous confrontations centering around the request of Kansas to become a state in 1854. Many in the South felt threatened by the idea of Kansas becoming a "free" state and abolitionists would not tolerate further expansion of slavery. When the Kansas-Nebraska Act (which allowed each state to determine whether it would permit slavery) became law on 30 May 1854, both sides sent men to settle in Kansas.

In the Missouri gubernatorial race of 1852, a pro-slavery Democrat named Sterling Price was elected. It was during his term that the conflict escalated and the phrase "Bleeding Kansas" was coined. The 1860 election saw Claiborne Fox Jackson, an advocate of popular sovereignty, elected governor of Missouri by less than 10,000 votes (Ingenthron 1980:30).

Missouri had hoped to remain neutral in the Civil War. However, on 15 April 1861, President Lincoln called for 75,000 men to put down the Southern rebellion and Missouri was asked to furnish four regiments (Meyer 1970:351). Instead, the legislature began actions to raise and equip a large force of troops for protection and defense of the state itself (Ingenthron 1980:37).

Jackson wrote Confederate President Davis on 17 April 1861, requesting aid for the State Guard and to provide for the capture of the Federal Arsenal at St. Louis. Davis sent two 12-pound howitzers and two 32-pound siege guns (Moore 1899:31; Catton 1961:374-375).

Missouri drifted further away from the Union when southern sympathizers captured Liberty Arsenal, near Kansas City, on 20 April 1861. Among the supplies recovered were numerous rifles, four brass guns (one a six-pound cannon) and quantities of cartridge boxes, powder and other ammunition (Moore 1899:29; McElroy 1909:63; Payne 1930:15).

Francis P. Blair, a Missouri Congressman and friend of Lincoln, went to St. Louis to raise the four Union regiments that the President had requested -- the Home Guard. Captain Nathaniel Lyon was dispatched from Fort Riley, Kansas to aid him (Ingenthron 1980:37).

Soon afterward, 700 of the state militia under the command of General D. M. Frost assembled at nearby Camp Jackson for a training session. Fearing that Frost planned to seize the St. Louis arsenal, Lyon captured Camp Jackson on 10 May 1861 with a force of 7000 men. Although the prisoners were soon released, Governor Jackson had lost substantial quantities of supplies and ordinance, including several cannons (Ingenthron 1980:37; McElroy 1909:86-87).

On 14 May 1861, Jackson united all of the state's military forces under the Missouri State Guard and appointed former governor Sterling Price its commander (Ingenthron 1980:39). General Harney, Lyon's superior, met with Price and agreed to

prevent further military intervention in the legitimate affairs of the state if Price maintained order. Lincoln soon removed Harney from command and replaced him with the newly promoted General Lyon (Ingenthron 1980:40-41).

On 12 June 1861 in St. Louis, Price and Jackson met with Lyon and Blair. Jackson offered to demobilize the militia, halt the shipment of arms and keep the state neutral if the Home Guard was disbanded and U.S. troops were restricted to St. Louis. Lyon refused to compromise (McElroy 1909:115-116):

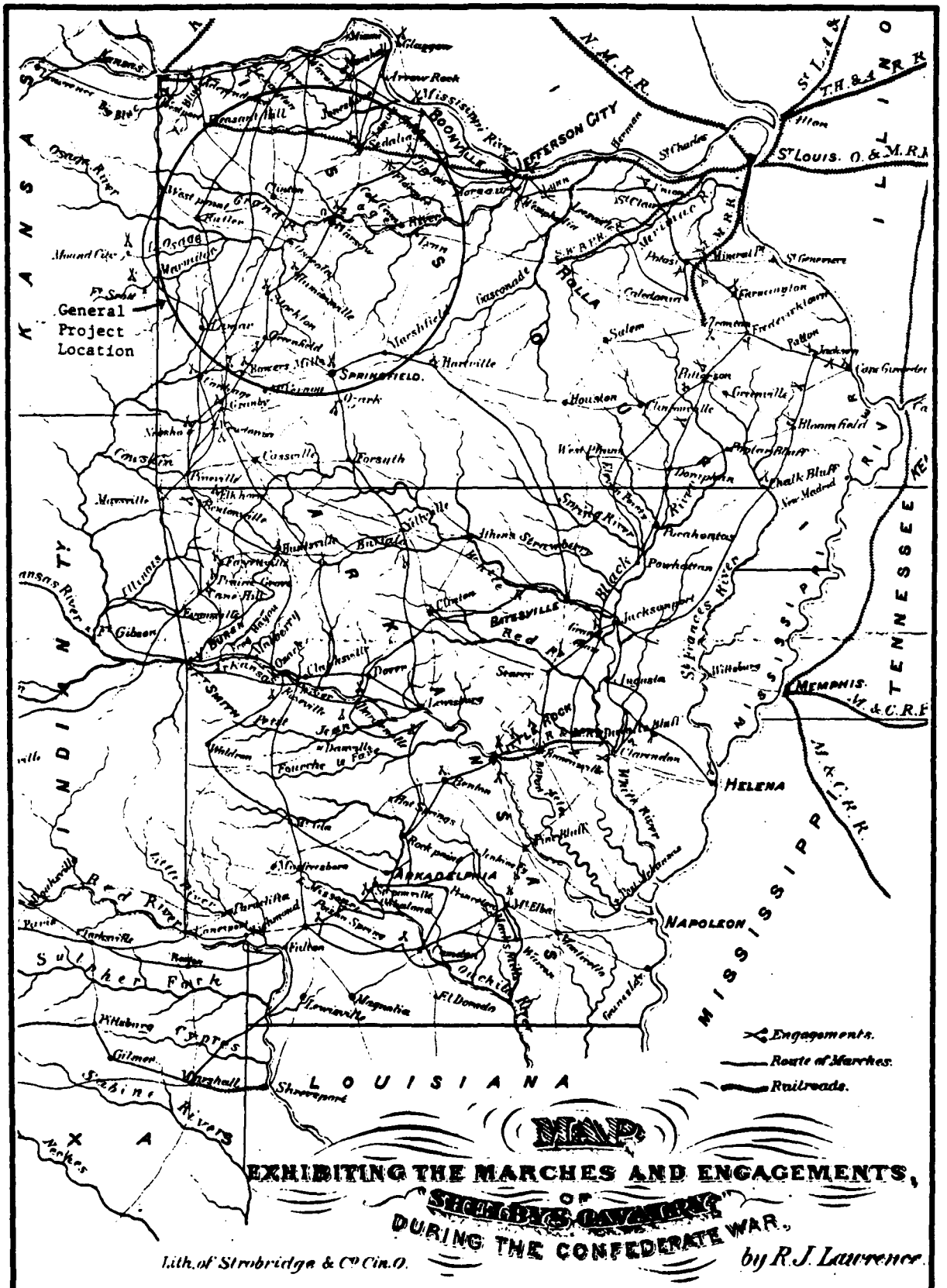
> Rather than concede to the State of Missouri the right to demand that my government shall not enlist troops within her limits, or bring troops into the State whenever it pleases, or move its troops at its own will into, out of, or through the State; rather than concede to the State of Missouri for one single instant the right to dictate to my Government in any matter however unimportant, I would see you, and you, and you, and you, and every man, woman, and child in the State dead and buried. .....This means war.

Governor Jackson and General Price returned to Jefferson City, burning the Pacific Railroad bridges behind them. Lyon followed in pursuit with 1700 men. Governor Jackson and other state officials evacuated the capital and fled to Boonville. On 18 June 1861, Lyon defeated the 1500 man State Guard at Boonville and forced their retreat to the southwest. He attempted to stop Jackson and Price from joining Confederate forces in Arkansas by sending Colonel Frans Sigel's troops to the south (Ingenthron 1980:41; see generally Figure 3).

A battle developed at Carthage on 5 July 1861. Price had some 5500 men and seven artillery pieces. This included "Old Sacramento", a 12 pound cannon captured during the Mexican War which had a distinctive ring when fired due to a high silver content (Ingenthron 1980:44). Sigel, with less than 1000 men, retreated to Springfield and called for reinforcements. General Price established an encampment at Cowskin Prairie, southwest of Carthage, to gather more recruits, train his troops and replenish his supplies.

The camp at Cowskin Prairie lasted only three weeks, until Lyon sent reinforcements to Sigel. The State Guard still needed supplies and ammunition, as it always seemed to lack (Bevier 1879:35-36):

> It was a heterogeneous mixture of all human compounds, and represented every condition of Western Life. There were the old and young, the rich and poor, the high and low, the grave and gay, the planter and laborer, the farmer and clerk, the hunter and boatman, the merchant and woodsman. At least five hundred of these men were entirely unarmed. Many had only the common rifle and shotgun. None were provided with cartridges or canteens. They had eight pieces of cannon, but no shells, and very few solid shot or rounds of grape and canister.



MILITARY MAP		
SCALE: no original	Contract No. DACW41-83-M-0568	DRAWN BY
DATE: 20 Jan 1984		
Lawrence's map of Shelby's Civil War activities		
from Edwards (1867)		Figure 3

> Rude and almost incredible devices were made to supply these wants: trace-chains, iron-rods, hard pebbles, and smooth stones were substituted for shot; and evidence of the effect of such rough missiles was to be given in the next encounter with the enemy.

Lyon reached Springfield on 13 July 1861 with combined forces of 5868 men and 18 pieces of artillery. Missouri and Arkansas State Guards under the command of General Ben McCulloch (over 11,000 men and 15 pieces of artillery) converged on him (Ingenthron 1980:75). On 10 August 1861 at Wilson Creek, Lyon was killed and Union forces were routed.

After the battle of Wilson's Creek, U.S. Senator James Lane led an unorganized force of 2000 men into Missouri. Moving north, Price forced them to retreat to Fort Scott, Kansas.

Price proceeded to Lexington to outfit his army, cut the Federal supply route and gather more men. Colonel James Mulligan commanded the Federal garrison with 3000 men and artillery including a 4-pounder, three 6-pounders, one 12-pounder and two 4-inch howitzers. Price commanded 10,000 men and 16 artillery pieces, including "Old Sacramento" (McElroy 1909:206; Monaghan 1955:190). Mulligan surrendered after a ten day siege.

Federal forces under the command of General John C. Fremont marched to Springfield with 30,000 men and 86 artillery pieces. On 29 September 1861, Price left Lexington and moved south to Neosho in order to avoid being cut-off from the Confederacy (Monaghan 1955:188-194).

Lane returned from Fort Scott with 1500 men to attack Price's supplies. He defeated a small force commanded by Captain John Weidmeyer and entered Osceola on 22 September 1861. His men looted and burned down most of the town (Shoemaker 1960:331; Ingenthron 1980:125).

Governor Jackson called a special session of the legislature at Neosho on 21 October 1861. Bills were passed which allowed Missouri to secede from the Union and request admittance into the Confederate States of America (CSA). Missouri was admitted on 28 November 1861, making it the last state recognized by the Confederacy. However, on 30 July 1861, a provisional government had been established by Union forces and Hamilton Gamble appointed governor. While the Confederates had the legitimate government, Union forces kept the provisional one in control.

In November 1861, General Price issued an appeal for more troops and established a winter encampment on the Sac River near Osceola. This was to serve as a staging area for the new Missouri Confederate Army.

A Union advance forced Price further south, where he merged his forces with those of General Earl Van Dorn, commander of Confederate Forces in the Trans-Mississippi. This army of 14,000 men and over 50 pieces of artillery engaged General Samuel Curtis' 10,000 Union troops and 49 pieces of artillery on 7 and 8 March 1862 at the Battle of Pea Ridge (Elkhorn Tavern), Arkansas. The

resulting Confederate defeat effectively removed Missouri and Arkansas from the Confederacy, preventing Price from ever again being able to mount an effective campaign (Ingenthron 1980:154; Monaghan 1955:234).

Civil War Activity in the Vicinity

On 10 November 1861, the Missouri State Guard moved from Pineville towards Osceola and camped at the Sac River. On or about 20 November 1861, a more permanent encampment was located on the north bank of the Osage River, just above the mouth of the Sac (Anderson 1868:105):

> Our camp was situated in a bottom, upon which was standing a heavy growth of timber that was rapidly converted into firewood by the soldiers....Back of our camp was a range of hills, running parallel the river these were generally steep, and in some places precipitous, covered, for the most part, with a scrubby growth of timber. In front lay a wide bottom, extending down into the fork between the Sauk river and the Osage; near, and below us, was camped the division of General Harris, then commanded by Colonel Green.

General Price established his headquarters immediately below the mouth of the Sac, near a ford crossing the Osage. In early December, all but Price's headquarters moved because of heavy rains. One division, commanded by Colonel Ed Price, moved to a more ideal location two miles up river on the Osage. The other division, commanded by Colonel Green, moved two miles up the Sac River (Anderson 1868:111). The exact locations of these encampments are not currently known.

The encampment on the Sac River lasted approximately a month while General Price recruited more troops and gathered supplies. Price also took this opportunity to train his men and reorganize his command. While the Missouri State Guard was not dissolved, its troops provided the nucleus for the formation of the Missouri Brigades as a unit of the Confederate Army. Price actively recruited soldiers from the ranks of the State Guard (Bevier 1879:74-75):

> Headquarters M.S.G., Camp on the Sac River
> December 2d, 1861
>
> GENERAL ORDERS, NO. 109
>
> I. A separate encampment will be forthwith established for the troops volunteering to enter the provisional Army of the Confederate States, upon the terms stated in the circular issued by Major General Price, on the 25th day of November last.
>
> II. All such volunteers will be admitted into the encampment, either by companies, in squads, or individually....
>
> By order of MAJOR GENERAL S. PRICE
> H. LITTLE, Adj't General

However, many soldiers in the State Guard had gone home, since their six month enlistment period had expired. Some

returned after several weeks, but few were enthusiastic and many resented the Confederacy. They were self-sufficient, had accomplished much without outside aid and were proud of their standing (Moore 1899:72):

> Commencing with nothing, they are now an army with muskets and bayonets and cartridge boxes, with fifty pieces of artillery and artillery horses and ammunition, with tents and transportation, and they had won them always on the field of battle, fighting always against odds.

In spite of this, many enlisted in the Missouri Brigades at Price's headquarters near the confluence of the Sac and Osage rivers. The first encampment of the Missouri Brigades was nearby (Anderson 1868:113):

> A few hundred yards above General Price's headquarters on the north bank of the Osage, the Confederate camp was situated upon a beautiful, level piece of land, which extended for half a mile along the river.

The Missouri Brigades camp was set out in even rows and a series of steps was cut into the bank, connecting it with the river. The entire area had been cleared of every tree and shrub and it was surrounded by swampy ground. A clear lake was situated at the turn of the river, near the center of the camp. Soldiers dug a trench to drain it into the Osage River and placed a fish trap in the end (Anderson 1868:114).

When the encampment near Osceola was abandoned on 19 December 1861, Price still lacked men and adequate supplies. On 2 January 1862, Union General Frederick Steele reported that Price had only 16,000 men and 63 non-rifled artillery pieces.

Civil War Artillery and Gun Emplacement

To consider the aspect of gun emplacement and fortification in relation to the Alleged Civil War site, it is necessary to briefly examine the types of artillery used during the Civil War and the manner in which they were employed. Gibbon (1860:62-70) divides the artillery into three general groups -- guns, howitzers and mortars.

Guns

While larger siege and garrison guns were made of cast iron, field pieces (6 and 12 pounders) were made of bronze. They were used as light artillery and fired both solid and hollow shot. Weight ranged from 884 pounds for a 6 pounder to 1,757 for a 12 pounder.

Howitzers

The howitzer is distinguished from a gun by its chamber for powder. Siege and Garrison howitzers (8 inch and 24 pounders) were made of cast iron. Field pieces (12, 24 and 32 pounders) and Mountain Howitzers (12 pounders) were made of bronze. Howitzers were lighter and more easily handled than guns.

Mortars

Gibbon (1860:68) described a mortar as "... a short-chambered piece for throwing at a great elevation, shells, which, acting by their velocity acquired in falling, serve to crush the vaults and shelters of the enemy, and set fire to them." Light siege and garrison mortars, made of iron, could be carried from trench to trench. Stone mortars used a 16 inch diameter shell, but could also throw a basket of stones. They would be used to clear an area before an attack. Coehorn Mortars, adapted for sieges, had a range of 1,200 yards for a 5.82 inch shell (equivalent to a 24 pounder).

Shells

Although several types of shells were commonly available, artillery crews often had to improvise by shooting chains, nails, stones and anything else that would fit down the muzzle. The types generally available were solid shot, exploding shell, cannister and grape.

Solid shot was the most common. It was manufactured in various sizes from that for a one inch gun to giant shots used by coastal pieces. The shot would ricochet off of the ground, potentially hitting several targets.

Exploding shells would be fired and explode by percussion or a lit fuse, which was generally undependable. Like solid shot, exploding shells varied in size and weight.

Catton (1981:128) describes the cannister and shot as a large can filled with bullets the size of golf balls. Gibbon (1860:160) adds:

> Canister shot is a tin cylinder with iron heads, filled with balls packed in with saw-dust. The heads are movable, and the edges of the tin are turned down over them to hold them in their places. The balls are made of such a size that seven of them can lie in one bed, one in the middle, and six around, making the diameter of the balls about one third that of the bore.

Grape shot consisted of 9 balls bound together and served the same purpose as cannister. Grape, however, is larger, travelled a greater distance, and could be employed in the same manner as solid shot.

Gun Emplacements

Artillery used in permanent fortifications usually had a large metal gun carriage which provided a way of moving the piece and adjusting its range. It also made it easier to load through the muzzle. Gun platforms, necessary to ensure that the piece was level, had to be heavily constructed to handle the weight and length of the gun and its recoil. These platforms were also used with siege and field pieces.

In establishing a gun emplacement, it was necessary to ensure that the artillery piece had a level platform of wood or soil to maximize range and accuracy. It was also desirable to protect the

gun crew. While this was routinely accomplished in permanent or semi-permanent positions, it was not always possible in the field. A fortification was often needed to protect the emplacement's flanks.

Probably the most famous instructor on fortifications during this period was Dennis Hart Mahan. Since he taught at West Point between 1830 and 1871, he influenced future Union and Confederate officers on the importance of fortification and artillery. Mahan (1861:xxii-xxiii) states that the position of field batteries should be viewed from the following perspectives:

> As a general rule artillery should overlook all the ground over which an enemy might advance, the pieces of heaviest calibre being placed on the most commanding points. The batteries, however, should not be within musket range of woods, or of any ground where the enemy's sharpshooters might find cover to annoy them. The slope of the ground on which the gun rests must not be too oblique to the line of fire, otherwise the shot will not tell...Positions should be so chosen that hollows, woods, villages, &c., on the front, or flank of the line occupied by the troops, may be thoroughly swept, to prevent the enemy's columns from approaching under cover....It must be borne in mind that in taking advantage of undulations to cover a battery it will not do to fire from behind the covering ridge, as the aim and range will be rendered very uncertain.

Mahan (1861:xx) also provides data concerning the range of 6 and 12-pound cannons. His charts show that at 550 yards a 12-pounder will hit a target 6 feet high and 95 feet in length 57 out of 100 shots. At 870 yards, only 39 will hit the target and at 1300 yards only 19 will be successful. With the 6-pounder, 49 will hit the target at 550 yards, 32 at 870 yards and only 12 at 1300 yards.

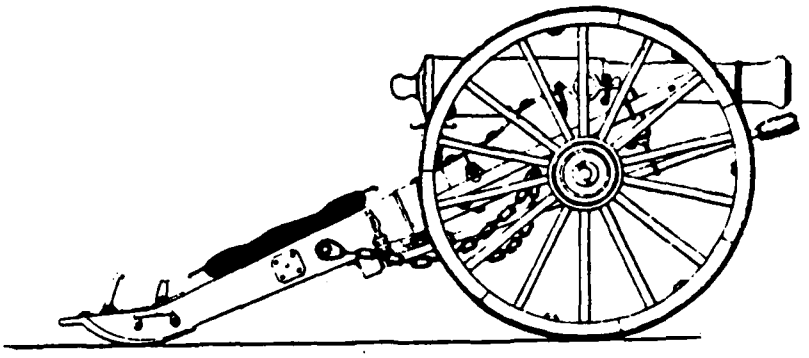
Most of the artillery used in the field during the Civil War came in three sections (Figure 4). First was the gun carriage, which provided an easily movable platform for the barrel. Range was adjusted by the elevation screw on the carriage. The limber was attached to the gun carriage and carried ammunition. The caisson, attached to the limber, held a spare wheel and two ammunition chests. These would be set away from the emplacement because of the quantity of ammunition they held.

The carriage, limber and caisson would be hooked together and pulled by a team of four to six horses. Members of the gun crew would ride the horses or on the caisson. Under ideal circumstances, a crew consisted of nine men.

Investigations at the Alleged Civil War Site

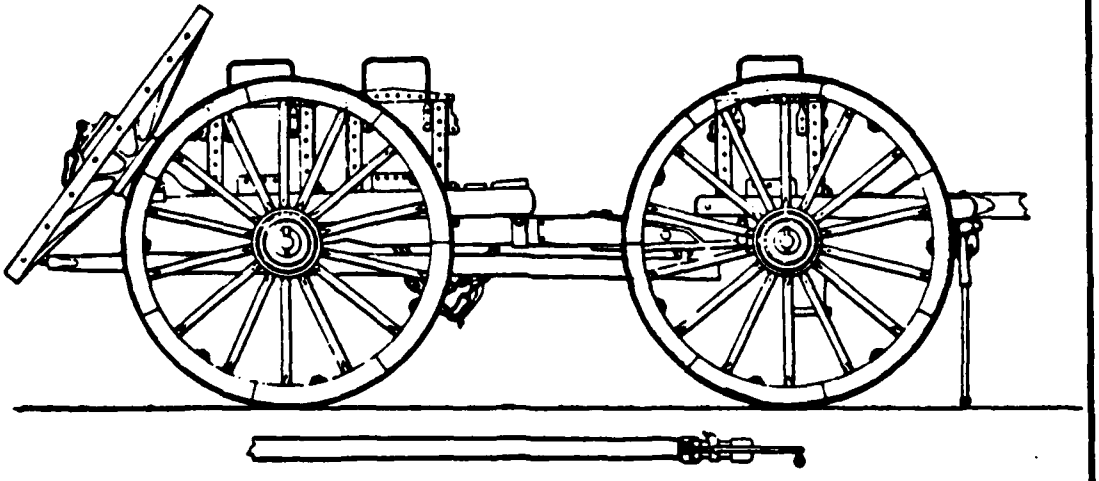
No one is certain of the exact location of the Missouri State Guard's Sac River encampments. It is possible, however, to approximate the locations of these sites, based on Anderson's (1868) descriptions (Figure 5).

Gun Carriage



Caisson

Limber

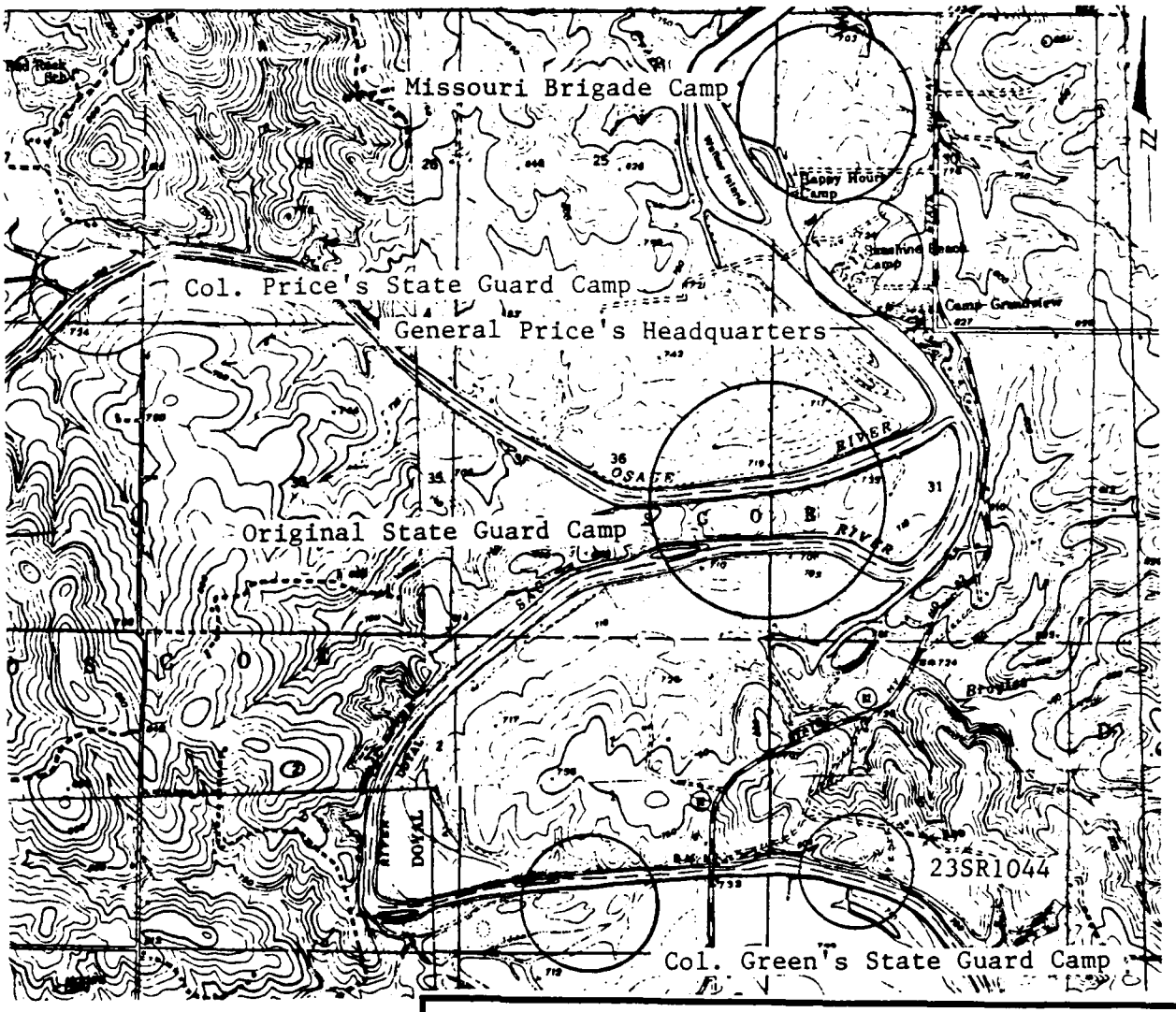


FIELD ARTILLERY

DATE: 20 Jan 1984	Contract No. DACW41-83-M-0568	DRAWN BY

Example of Civil War field artillery

from 1861 U.S. ordinance manual — Figure 4



VICINITY ENCAMPMENTS

DATE: 20 Jan 1984	Contract No. DACW41-83-M-0568	DRAWN BY
General vicinity of several area Civil War encampments		
Base map composite of Vista, Roscoe, Monegaw Springs and Osceola USGS 7½' quadrangles		Figure 5

Mr. Reed, a local historian and previous owner of the property, has identified a point bar across the Sac River as being a possible location of one of the later camps. He escorted HPA investigators to this area and pointed out a series of small mounds in a marsh, each approximately 50 cm high and 8 m in circumference. He also noted a canal that empties a lake into the Sac. The canal is approximately 5 m wide, 2 m deep and 20 m long. It was suggested that the mounds elevated Confederate tents above high water and that the canal was dug by Confederates to drain the lake and trap fish (Reed 1983). HPA did not conduct metal detecting or other subsurface testing at this location. Mr. Reed (1983) indicated that his metal detecting had failed to find anything in the area before it was acquired by the COE.

Metal detecting by HPA personnel at the features on the bluff was completed with negative results, although the natural sandstone contains traces of iron (Watson and Williams 1911:7) which could mask subsurface metal artifacts. The surface of the area is covered with prehistoric chipped stone artifacts, but no diagnostic artifacts were observed and no collections were made. The site was reported to the Archaeological Survey of Missouri and was officially designated 23SR1044.

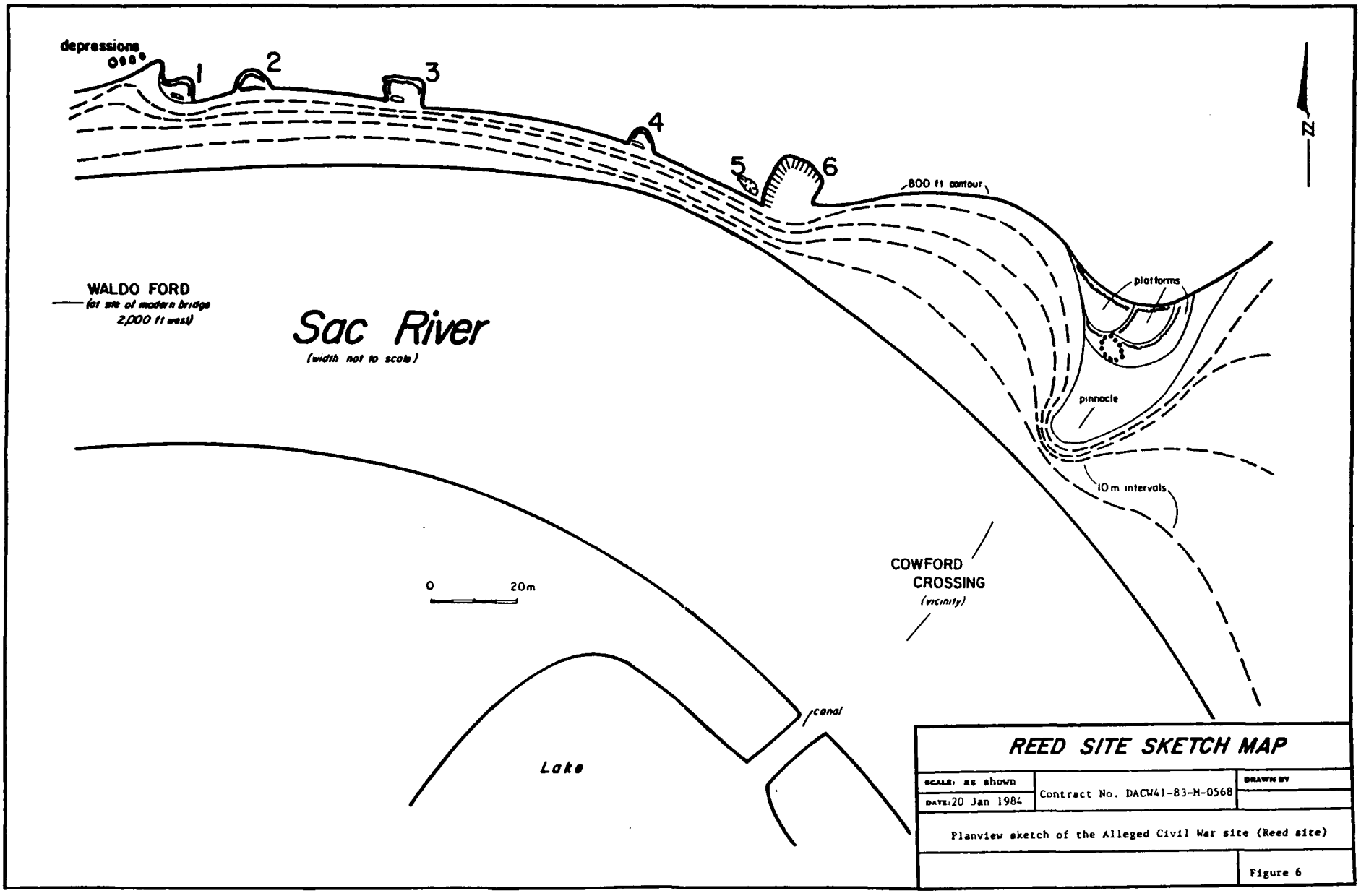
The Alleged Civil War site exhibits a number of shallow depressions and level excavations (Figure 6). Furthest west are four shallow depressions on top of the bluff, each less than 1 m deep and 2 m in diameter. It is thought that these could have been rifle pits (Reed 1983). The level excavations were mapped and photographed as features 1 through 6 along the bluff.

Feature 1 is generally V-shaped, opens to the west-southwest and overlooks the Highway 82 bridge where historic fords may have been located (Figure 7a). It is 5.3 m wide, 4 m long and averages 1.1 m in depth. The gentle slope into which the feature was excavated provides a natural rock lining on two sides. The base of the feature is level and no excavated material is evident around the rim.

Ten meters northeast of Feature 1 is Feature 2 (Figure 7b). It is a semi-circular excavation 2.5 m below the top of the bluff which is 8 m wide at the mouth and 4 m deep. It is naturally rock lined on three sides and opens to the southeast. Again, none of the excavated material was piled around its perimeter; it must have been transported away or dumped below. The base of Feature 2 is not as level as that of Feature 1 and the bluff drops sharply to the southeast.

Feature 3 is approximately 28 m east of Feature 2 along the edge of the bluff. It is generally rectangular, opens to the south and is 3.5 m wide, 8.4 m long and 1.3 m deep (Figure 7c). No natural rock lining is in evidence here, but this characteristic may be buried by natural erosion and soil slumping. On the south side is a small 1 m high hummock which may represent at least part of the excavated material.

Feature 4 (Figure 7d) is 55 m east of Feature 3, naturally rock lined on three sides and opens in a U-shape to the south. It



REED SITE SKETCH MAP

SCALE: as shown	Contract No. DACW41-83-M-0568	DRAWN BY
DATE: 20 Jan 1984		

Planview sketch of the Alleged Civil War site (Reed site)

Figure 6

a

b

REED SITE FEATURES		
DATE: 20 Jan 1984	Contract No. DACW41-83-M-0568	DRAWN BY
Photographs of features 1 and 2 at the Alleged Civil War site		
		Figure 7a-b

c

d

REED SITE FEATURES

DATE: 20 Jan 1984	Contract No. DACW41-83-M-0568	DRAWN BY
Photographs of features 3 and 4 at the Alleged Civil War site		
		Figure 7c-d

e

f

REED SITE FEATURES

DATE: 20 Jan 1984	Contract No. DACW41-83-M-0568	DRAWN BY

Photographs of features 5 and 6 at the Alleged Civil War site

Figure 7e-f

REED SITE FEATURES		
DATE: 20 Jan 1984	Contract No. DACW41-83-M-0568	DRAWN BY
Photograph of the Waldo Ford vicinity taken from Feature 1		
		Figure 7g

is 1.5 m deep, 2.3 m wide at the back, 3.2 m long and 4.5 m wide at the mouth. A low hummock which may represent part of the excavation debris lies along the open part of Feature 4.

Feature 5 is a shallow depression at the top of the bluff crest. It lies approximately 22 m east of Feature 4, is 40 cm deep and 2.5 m wide, with a useable area 1.5 m wide (Figure 7e). While it is possible that the original character of this feature has been hidden by slumping walls, it has few of the characteristics common to the other features, such as well defined edges and natural rock linings.

Feature 6 (Figure 7f) is 2.5 m east of Feature 5 and opens south to southwest. It is naturally rock lined on two sides (partly on the southeast side) with some fallage in the level area. It is 8.8 m wide, 8 m long and 4.3 m deep. Of all the features investigated along the bluff line, this is the largest and most impressive in its extent and clarity. There is no evidence of excavated material in the immediate area in the form of hummocks or other mounds.

Other suspected features were also noted by Mr. Reed. Immediately east of Feature 6 are three ledges or platforms. Each is approximately 2 m wide, 2.5 m long and 1 m to 1.5 m below the previous one. On the lowest step is a circle 5 m in diameter which is outlined by a small pile of rocks. Beyond this point is a natural rock pinnacle that could have served as an observation point (Reed 1983).

Feature 1 is hypothesized by Reed (1983) to be an artillery pit oriented toward Waldo Ford. Feature 2 is thought to have held a mortar. It was suggested that Feature 3 was a "sleeper" with artillery directed toward Waldo Ford -- while the piece in Feature 1 would have been visible from below, a larger piece could have been hidden in Feature 3. Feature 4 is theorized to have been an artillery pit oriented toward the south and Feature 5 an artillery pit oriented toward the southeast. Feature 6 is hypothesized to have held several pieces of artillery oriented south-southeast towards Cowford's Crossing (Reed 1983).

Evaluation of the Available Data

It has been documented that the Missouri State Guard had numerous camps in the vicinity from 20 November to 19 December 1861. It is likely that several batteries of 6 and 12-pound field pieces would have been included in this force. It is also probable, however, they did not have enough ammunition to conduct the extensive firing required to center these weapons at distant targets.

Location

The presence of fords within the immediate vicinity is an important factor in the argument that this site was used during the Civil War as an artillery emplacement. The control of these fords and the roads which crossed them is one of the only logical purposes this location could serve.

While the Sac River could have been controlled at this point, it would have been just as possible to control the Sac and the larger Osage at the bluffs overlooking the confluence of the two rivers. This was the location selected by Price to serve as his headquarters. The bluffs on which the site is located may have served to protect Price's flank by controlling these routes from the south.

It is difficult to precisely plot the locations of the fords, as early maps of the area are not detailed. Lloyds Military Map of 1861 shows a road from Fort Scott to Osceola which crosses the Sac River in approximately the same location as the present Highway 82 bridge.

Reed (1983) has identified two crossings in the vicinity. Waldo Ford may have been situated as far as one-fourth mile west of the bridge, possibly beyond the effective range of artillery on the bluff (Table 1). Cowford Crossing is placed at "Cannonball Hollow", overlooked by Feature 6. This and the valley immediately below would have been well within range.

TABLE 1
Artillery Pieces and Their Range
(From Gibbon 1860:40-42)

TYPE OF ORDINANCE	ELEVATION (Degrees)	RANGE (Yards)
6-pounder field gun	0	318
	5	1523
12-pounder field gun	0	347
	5	1663
12-pounder field howitzer	0	195
	5	1072
Mountain howitzer	0	170
	5	1005

The vicinity of the Highway 82 bridge is the most ideal location for crossing the Sac River in the area. The soils there are among the highest on the south side of the river. The fact that two recent bridges have been built at this location supports this conclusion.

Feature 1 has a clear view of the present bridge (Figure 7g) and the bluff segment on which it lies is within plain view from the bridge below. While Feature 3 does not have as clear a view, the bridge can be seen while standing directly behind it.

Cowford Crossing, on the other hand, is located near low soils with the lake on the south side of the river. A road

passing through this area would probably be flooded and/or unusable during much of the wet spring months. Relatively steep slopes on the north side of the river would also make passage difficult. Rather than serving as a permanent crossing, it may have been used only during times of low water. This is the only location which could have been easily used to ascend the bluff for considerable distances upstream. Feature 6 has a commanding view of this area and the pinnacle to the southeast offers a clear view of the canal across the river.

Before dam construction, many areas of the river are said to have been shallow enough to wade across, but it is not likely that these would have served as permanent crossings. The road, in all likelihood near its present location, could have been a determining factor in placing artillery on these bluffs.

Gun Emplacements

Platforms for field pieces consisted of two perpendicular sets of planks which provided sufficient room to man the piece and handle its recoil. Guns and howitzers both used a platform 9 ft long, 15 ft wide and 10.5 inches thick (Gibbon 1860). Mortars were fired from platforms 9 ft long, 7.5 ft wide and 7 inches thick. The Missouri State Guard probably excavated equivalent level areas rather than using platforms for their artillery.

All of the features along the bluff except features 4 and 5 were capable of accepting siege platforms or providing an equivalent area. Feature 4 is at the top of a small gully and is too small to accommodate any artillery piece. Feature 5 is too small and irregular for either mortar or gun but could have been used to hold ammunition.

None of the features exhibit any traces of breastwork construction. While local tradition holds that there were breastworks across the front of several features, their high elevation might make this unnecessary. It should also be noted that a block and tackle would have been required at each feature to lower the guns into position and to recover the guns for use elsewhere.

Feature 3 also poses a problem. While its mouth is oriented to the south, it has been hypothesized as containing a battery facing west toward Waldo Crossing (Reed 1983). Although the bridge can be seen while standing on top of the bluff behind this feature, it was not a standard military practice to fire a piece over another or from behind ridges (Mahan 1861:xxii-xxiii).

Other Uses

Other possible uses of these features include prehistoric activity and historic quarrying. While there has been prehistoric use of this area, there is no known occurrence of this type feature in a prehistoric context (Chapman 1975; 1980). While there is a possibility that the depressions could represent disturbed cairns or burial mounds (Chapman 1980:150-151), these are actually too small and no characteristic shell tempered ceramics indicative of a later occupation have been found.

Historic quarrying would not explain all of the features. Only Feature 6 is large enough to have produced any quantity of sandstone for construction purposes. This sandstone has provided building materials for bridges, houses and other buildings (Missouri Division of Geological Survey and Water Resources 1967:154-155).

Impacts, Significance and Recommendations

The area acquired by the COE within which the Alleged Civil War site is located is part of a wildlife management area licensed to the Missouri Department of Conservation. Although this area is open to public access, there are no plans for future development and therefore no government activities will result in adverse impacts.

The features on the bluff top are certainly cultural in origin. A few, but not all, could have served as stone quarries. Although they may be associated with the prehistoric component, some historic debris has been found in and around them.

The Missouri State Guard had artillery when encamped on the Sac. It is likely that this artillery would have been placed at strategic positions in the area, possibly including these bluffs. While a trench drains the lake across from these features into the Sac River, a similar feature is associated with the encampment of the Missouri Brigades, located about one mile north of the Sac/Osage confluence. Some of the features are large enough to have held artillery pieces, but block and tackle would have been required to install them.

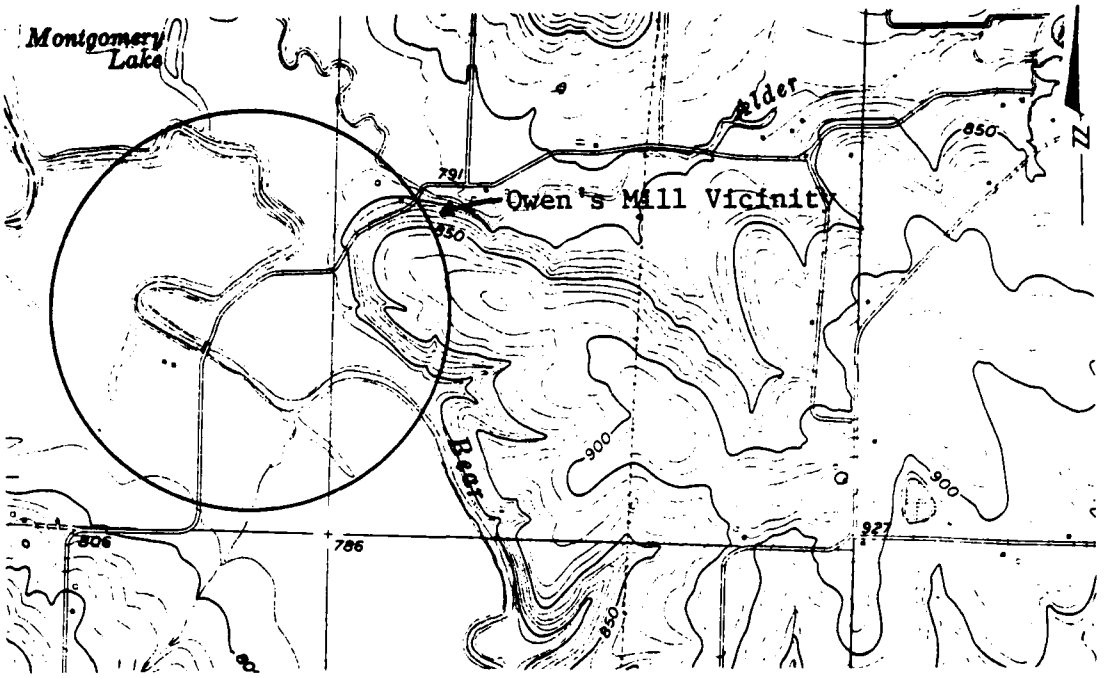
Based on all of the available data which have been assembled and reviewed, no clear arguments can be presented to support a Civil War association for the features at 23SR1044. While the possibility exists that some or all of these features are Civil War in origin, it is not likely that this association alone would lead to National Register eligibility.

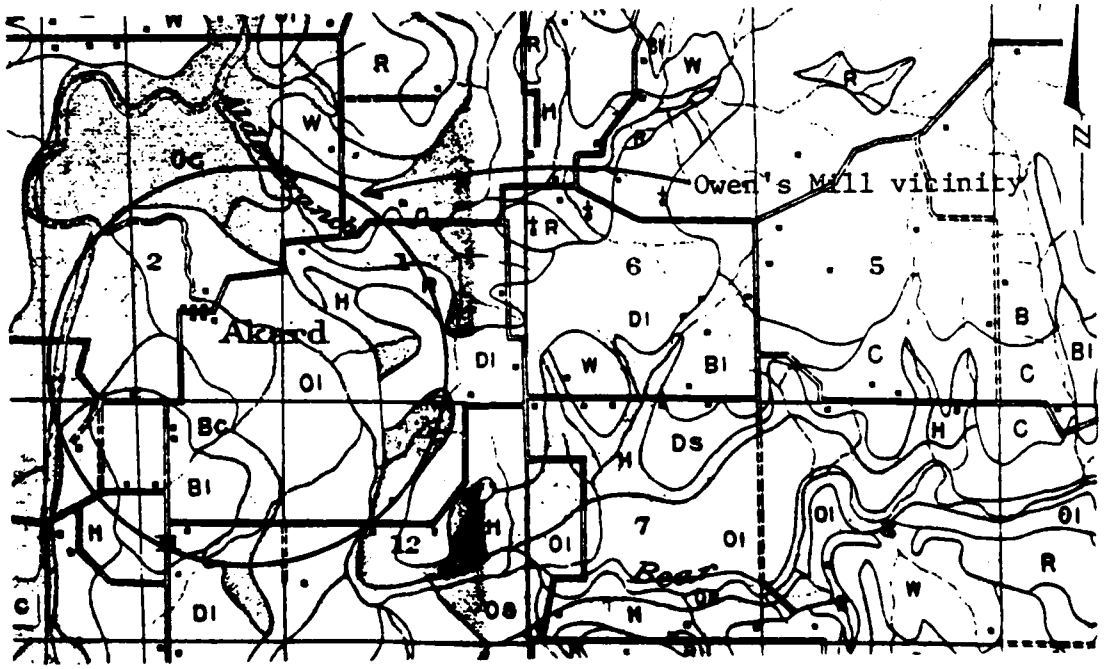
Given these circumstances, we recommend that the District conducts no additional cultural resources work at the Alleged Civil War site and that no determination of eligibility for the National Register of Historic Places be pursued. If at any future time new data are assembled which more fully support a significant Civil War association, the Kansas City District of the U.S. Army Corps of Engineers and the Missouri Department of Natural Resources, Historic Preservation Program should be contacted immediately.

OWEN'S MILL

Environmental Setting

Owen's Mill (23CE393) is situated on the south (left) bank of Bear Creek in the floodplain of the Sac River (Figure 8). It lies downstream of the Stockton Dam and is approximately 4 miles northeast of Stockton, Missouri. The surface at the site is relatively level, some 4 m above the creek. The south side of the creek is in pasture and an old road is located 40 m south of the





OWEN'S MILL VICINITY

DATE: 20 Jan 1984	Contract No. DACW41-83-M-0568	DRAWN BY

General vicinity of Owen's Mill and the community of Akard on 1981 USGS 7½' quad (top) and 1911 soils map (bottom)

Figure 8

mill. A portion of this road presently serves as a driveway for the Dick Bullard residence.

East of the mill site is a simple truss bridge built around 1905; it is iron with a wooden floor. Also in the area is a two story clapboard house which apparently dates to the middle of the 19th century.

Modern soil maps are not available for the Owen's Mill vicinity or Cedar County. A 1909 soil map of Cedar County (Watson and Williams 1911; Figure 8) which also shows the community of Akard, identifies vicinity soils as Osage silt loams. This area has been described as an ecotone between the Ozark Plateau and the Cherokee Prairie (Savage 1983). HPA personnel observed a brown silty loam with limestone cobbles on the surface. Vegetation consists of an oak hickory tree line limited to the banks of Bear Creek.

Soil in the vicinity is especially good for growing wheat. Although Osage silt loams tend to have drainage problems due to their low-lying situation, those along Bear Creek are high enough to provide sufficient drainage (Watson and Williams 1911). The native water oak forest and the higher than normal elevation undoubtedly contributed to the establishment of a saw mill at this location.

Previous Investigations

Previous studies of Owen's Mill consist of documentary research conducted under contract with the Kansas City District (Linderer 1977; Synhorst 1982). Synhorst (1982) lists Owen's Mill under several names. Akard is described as a trading point established at the end of the Civil War, also listed as Hubbard Mill, Tatum Mill, Crow's Mill and later as Owen's Mill (Synhorst 1982:5). Crow's Mill is described as being on Cedar Creek, being built in the 1840s or 1850s, and also called Owen's Mill (Synhorst 1982:59). Owen's Mill, also known as Akard, was believed to have been built about 1870 (Synhorst 1982:177). Linderer (1977:146) traces its development through local histories.

Short articles about the mill have also appeared in the local newspaper. Cedar County histories (Abbott 1967; Abbott and Hoff 1971) represent additional useful sources of information.

Methodology

In order to gain a more complete understanding of Owen's Mill, it was necessary to conduct a search of archival resources concerning mills in general and Owen's Mill in particular. Abbott's (1967) discussion of Owen's Mill provided a starting point for documenting the site. Although the local newspaper had several articles on life in the mill community, it was not possible to locate newspapers or insurance records dating to when the mill was operating.

Unorganized early county records are stored in the Cedar County courthouse basement and were made available for our inspection. Some early records were found, but these were frequently incomplete, poorly preserved and/or unindexed. Due to

these limitations, only a partial examination of probate records, deeds, tax books and other related documents could be accomplished.

Among the earliest records found in the courthouse were the 1841 County Assessor's book, Circuit Court Records for 1846, Probate Court Records for 1853, Record of Sale of Lands and Lots in Cedar County for 1866 and the 1870 tax book of Cedar County. A day book for the Briscoe and Corbins store (with which the Owen Brothers had an account), dating to 1882, was also found in the courthouse basement. In addition, an abstract of the Owen's Mill property was examined.

John Owen, a member of the family for which the mill was named, was interviewed and provided several documents and photographs relating to the site. Other residents of the area, including Wilbur Miller, Clayton Abbott, Lewis Walker and Robert Carver were also interviewed. The present landowner, Dick Bullard, provided a considerable amount of information about the site, including the use of the abstract.

The site itself was also examined and documented. Several visits were made in order to inspect the dam, mill foundations and other relevant remains. The site was mapped and a comprehensive set of photographs was made. A surface survey of eroded areas along the creek was conducted and Mr. Bullard's collection of artifacts from the immediate vicinity was examined. No metal detecting or other subsurface investigations were accomplished.

Mills and Milling

Jeane (1974:90-94) has described mills as falling into one of four categories. These include the simple grist mill (which ground corn), the grist-saw mill complex, the grist-saw-flour mill complex and the integrated mill complex. When wheat became an important crop, it required the introduction of new machinery and technology.

Mills were a major source of commerce and social interaction. Once a mill was established, a community often grew around it. Jeane (1974:vii) has demonstrated that mills can be correlated with the settlement and general development of many rural areas.

The saw mill was probably the first type established in most areas, since most of the landscape was forested. When the source of wood diminished, a grist mill would be added. As settlement and agriculture increased, the mill would grow. In most milling communities, the owners of the mill also operated stores, blacksmith shops and/or post offices.

Cultural features were not determining factors in the placement of mills. The most important attribute was the presence of a sufficient head of water, calculated by measuring stream flow (Jeane 1974:99-100).

Dam construction was probably the most significant aspect of building a mill. Before construction began, it was necessary to calculate the head of water (which translates to amount of power), bank condition and amount of fall in the river. These factors

contribute to the effectiveness of the dam, the type of power used and the overall condition of the mill.

Evans (1850:207-208) developed a series of general rules for the construction of mill dams:

1. Construct them so, that the water, in tumbling over them, cannot undermine their foundations at the lower side.
2. And so that heavy logs, or large pieces of ice, floating down cannot catch against any part of them, but will slide easily over.
3. Build them so that the pressure of force of the current of the water will press their parts more firmly together.
4. Give them a sufficient tumbling space to vent all the water in time of freshets.
5. Make the abutments so high, that the water will not overflow them in time of freshets.
6. Let the dam and mill be a sufficient distance apart, so that the dam will not raise the water on the mill, in time of high flood.

Millers recognized the importance of the mill dam to their livelihood and invested considerable money, materials and effort to build a structure that would last. Until around 1840, most power was provided by wooden waterwheels.

The most easily built, though least efficient, is the tub mill. It is distinguished by a flume that directs water to its blades. Tub mills were usually small. The undershot wheel was powered by water hitting the lowest part and turning it in a counter clockwise rotation. These power sources required a wide stream with little fall and a great quantity of water (Jeane 1974:28). In the breast wheel, water hit the middle of the paddle and turned it in a counter clockwise motion.

The most efficient wheel was the overshot. These were used primarily in the upper reaches of a stream. A flue would carry the water to the top of the wheel where it would fall, causing the wheel to rotate in a clockwise motion. Until the introduction of the turbine in the 1860s, the overshot was by far the most popular (Figure 9).

Turbines could be submerged in water and operate year round. Water enters a series of vents, rotates the turbine and is then forced out through the center of the turbine. Many mills eventually converted to turbine power.

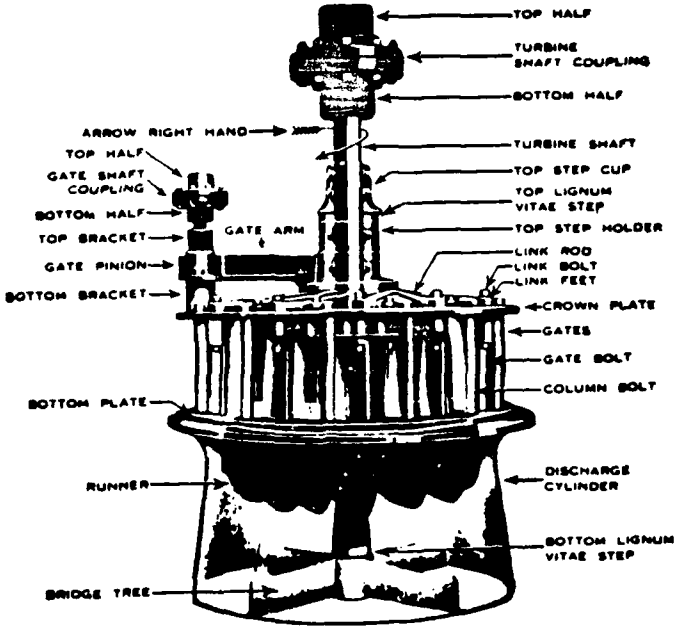
There was an assortment of industries that specialized in mill machinery. They ranged from the manufacturing of simple items such as mill stones to the most complex piece of equipment that could handle the grain from start to finish.

Identifying specific mill technology is difficult when the mill is vacant or destroyed. It is possible, however, to hypothesize what was present by the equipment available and the types of grains processed at the time.

THE JAMES LEFFEL & CO

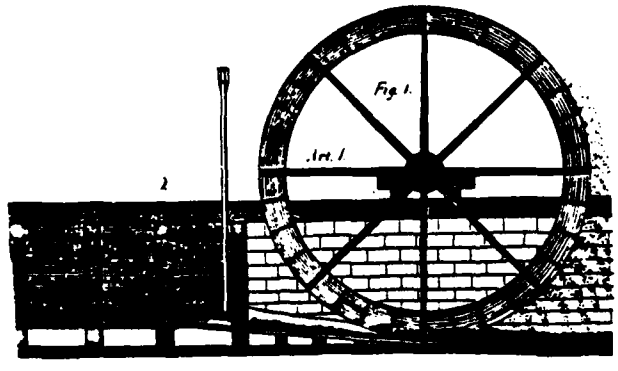
Improved Vertical Samson Turbines

These turbines are built strong and substantial, and equipped with our exclusive design double steel bucket runners fitted on steel shafts. Large top and bottom lignumvitae step bearings for carrying the revolving parts of these turbines, including the weight of extra upright shafting and gearing. Also, balanced swing-type gates with separate adjustable steel connections. Each gate removable independently. All bearings of large dimensions and special material. Bolted couplings.



SPRINGFIELD, OHIO. U.S.A.

ESTABLISHED 1862



TURBINES AND WATER WHEELS		
DATE: 20 Jan 1984	Contract No. DACW41-83-M-0568	DRAWN BY
Turbine components and typical water wheel cross sections		
from Zimilies (1973:21) and Evans (1850)		Figure 9

Underneath the first floor, in a basement or a crawl way, was the powershaft. On it were various wheels used to power different machinery throughout the mill. Before the introduction of belts around 1860, pins and cogs were used to transmit power. Another item that may have been found here would be a grain chute. Grain would then have been transferred by elevators to the upper floors. Machinery on the first floor consisted of at least the grinding equipment, a desheller and a bagger. This floor could also have the mill office, a grain chute and other sets of grinding stones.

The second and third floors (if existing) would consist primarily of grain storage bins. The miller would usually have a bin for corn, one for oats and another for wheat. Grain could be sent to the various processors by gravity fed chutes.

Machinery within a mill varied according to the types of grains processed and the types of equipment and amount of capital available. There was no ideal floor plan; all depended on several economic and environmental conditions, such as mill location and existing technology.

Grinding was accomplished by a set of two dressed stones. There were several types of dressing, each producing a specific kind of meal. These stones, called buhr, were often locally or regionally made. The top stone usually moved while the other was stationary; grain trickled into the top and the finished product came out the bottom or side (Figure 10).

When smaller grains, such as oats and wheat were processed, it was necessary to reduce the distance between the stones to ensure that they would be ground properly. This adjustment could be achieved by raising or lowering either stone. However, many millers would avoid this by employing additional stones. There would be a series of chutes that lead to different sets of stones, each adjusted for a specific grain.

Beginning in the 1840s, it became possible to replace the stones with metal rolls. These consisted of various metal sleeves with holes of differing diameters. Grain would be placed between the sleeve and a coarse metal roll. This procedure insured a high quality produce and was easily adjusted and cleaned.

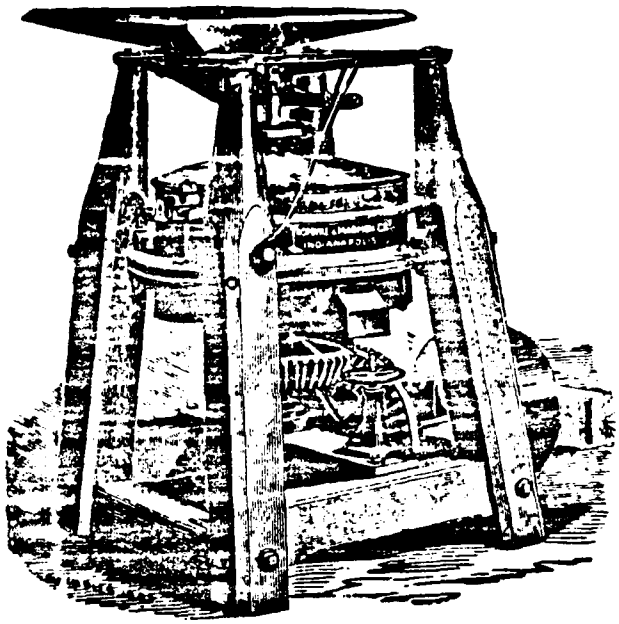
With these and other machines running, mills were both hazardous and noisy. It would have been impossible to carry on a conversation within the mill itself and the use of belts to power equipment made the inside of the mill a dangerous place to work. The greatest risk to the mill complex was fire, commonly caused by friction in the machines or a dust explosion within the mill. As a result, many mills have been built on the foundations of their predecessors.

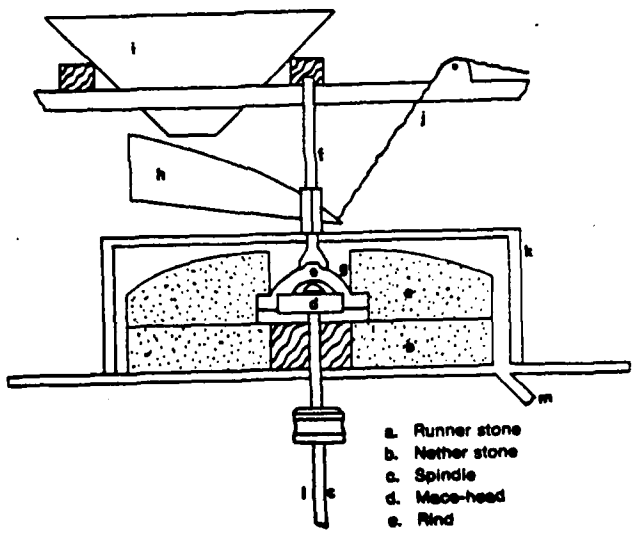
History of the Mill

Crow's Mill, 1840-1863

History of the site can be traced to 22 April 1840, when Oliver Hubbard and Richard Tatum filed with the United States Government Land Office for 160 acres. They soon began construction of a dam and saw mill. On 1 February 1842, before

THE DIXIE UNDER RUNNER STIFF SPINDLE MILL.





a. Runner stone
b. Nether stone
c. Spindle
d. Mace-head
e. Rind
f. Damsel
g. Eye of the runner stone
h. Shoe
i. Hopper
j. Adjusting string
k. Vat
l. Spindle
m. Flour chute

GRINDING MACHINERY

DATE: 20 Jan 1984	Contract No. DACW41-83-M-0568	DRAWN BY
Components and an example of a typical mill		
from Moore (1899:31) and Nordyke & Marmon (nd)		Figure 10

construction was complete, Hubbard and Tatum sold the property to Phillip Crow for $2500 (this and other prices reflect the consideration stated in the deeds). The saw mill soon started operation under the name of Crow's Mill (Abbott 1967:177), although Synhorst (1982:5) lists the place being known previously as both Hubbard Mill and Tatum Mill.

On 26 December 1842 Phillip Crow sold the property to Felix Hunton for $1582. At present, there is no known explanation for this rapid decline in its value. It is possible that the mill had been damaged in an accident or Crow, who had considerable property in Osceola (Shoemaker 1960:328-330), may have set a low price for quick sale.

When meetings were held for the formation of Cedar County, they took place at Crow's Mill (Shoemaker 1959:330). At the 7 April 1845 and 7 May 1845 meetings, county judges were qualified, the sheriff elected, a county clerk appointed and townships formed. Further meetings were held at a location south of Stockton (Abbott and Hoff 1971:13-14).

It is possible to generally predict the type of technology first used in Crow's Mill. The saw mill was probably the earliest form of milling industry, usually family owned and producing a rough cut lumber. Power was provided by a mill dam, probably constructed from wood and the water turned either an undershot or tub wheel. In all likelihood, Crow's Mill used pins and cogs to transmit power to the machinery, but no data have been found to confirm this. It is unlikely that a turbine was used to power Crow's Mill.

On 6 February 1846, Hunton sold the half quarter section which included the mill to James M. Blakey for $1750. On 1 May 1852, he sold the other half of the land to Warren Hearn for $1250.

On 5 December 1849, Blakey sold his property to I. H. Wentworth for $1000. It was transferred to Martin Wentworth on 1 April 1856. Martin Wentworth apparently died soon before 22 November 1859, when John and Abigail Birdsall used a part of his estate as collateral for a $5000 loan in Illinois. On 8 March 1860, the Birdsall's, Smith L. Cogswell and Samuel Reed sold their interest in this portion of the estate to Eli Collins for a stated consideration of $1000.

Eli Collins then shared ownership of the property and presumably operation of the mill with Thomas B. Wentworth, the remaining heir. During the Civil War, Confederate General J. O. Shelby sent a detachment of troops to Stockton. On 5 October 1863, these men burned down Crow's Mill, the county courthouse and Caplinger's Mill, located to the northwest on the Sac River (Shoemaker 1959:333). With the probable exception of the foundation, it is not known what further remained of Crow's Mill after Shelby's visit.

A grist mill had been added between the time Philip Crow sold the mill and when it burned down (Abbott 1967:178). This was done with a series of stones which could be raised and lowered,

permitting the grinding of corn and wheat. Although there may have been only one set of stones, a more substantial power source would have been needed. This change may have been from a tub to an undershot wheel. The lumber mill, as local tradition holds, was once on the opposite side of Bear Creek.

Owen's Mill, 1869-1913

On 13 January 1869, Dennis H. Connaway bought controlling interest in the mill and 40 acres northeast of the creek from Eli Collins for $200. He acquired the remaining one fifth share owned by Thomas B. Wentworth, then deceased, for $40 on 7 July 1869. On 15 August 1869, Jeremiah R. Owen completed the purchase of this property from Connaway for a total of $260, a price which may reflect the property value without an operational mill.

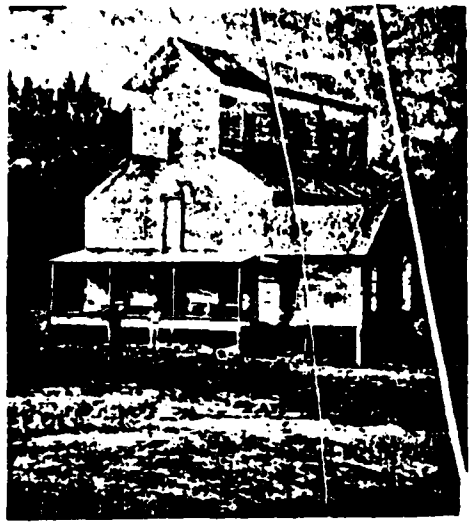
Apparently J. R. Owen began **reconstruction** of the mill soon after its purchase. Abbott (1967:178) states that the mill was rebuilt and a steam boiler added in 1868 under the ownership of Owen, Hubbard and Jackson. However, neither Hubbard nor Jackson are mentioned in the records, so they may have been investors or employees. Abbott (1967:178) cites the 5 January 1870 Stockton Journal:

> New mill on Bear Creek! Three and one-half miles northeast of Stockton on the Humansville Road. J. R. Owen & Co. would inform the citizens of Cedar County and vicinity that they are now prepared to saw and sell all kinds of lumber. They would also in connection with the Saw Mill, Shingle and Lath saws. They would also inform the public that they have put in operation a Corn Mill and are prepared to manufacture a No. 1 article of Corn Meal.

The milling industry was at its zenith at this time and Owen had a wide selection of equipment. The Dixie Under Runner Stiff Spindle Mill (Nordyke and Marmon nd:14; Figure 10) was typical of those available. It could handle from 6 to 22 bushels of corn meal an hour, depending on the character of the buhrs. Its price ranged from $130 to $280, according to the size of the mill and the type of power source used.

J. R. Owen sold the mill to John T. Owen and Flemming Burton "Coon" Owen, for $5000 on 19 June 1873. These brothers are credited by Abbott (1967:178; see Figure 11) as being responsible for improvements that allowed the mill to handle flour. It is likely that John T. Owen and Coon Owen built the rock dam seen at the mill site today. The cut stone dam represented a substantial new investment in the mill operation. It not only increased the efficiency of power production for the mill, but also significantly extended the life expectancy of the dam itself. Tradition has it that the rock dam was placed in front of the log dam.

Although the mill stayed in the Owen family for over 40 years, there were numerous transactions within the family and it was often used as collateral. Owen Brothers, consisting of J. R., John T. and F. B. Owen took over the mill on 15 July 1883. On 28



The above picture was taken in 1932 of Owen's Mill. Standing in front of the mill are Otis Ibach and the grandson of the gentlemen who built the mill. This picture was furnished to us by Mrs. Otis Ibach.

Owens Mill

by Clayton Abbott

Part II in a series

About 1890, the Owen Brother, John and Burton Fleming, came into possession of the mill. These brothers were grandsons of J. R. Owen. They made the mill into a modern flour mill, and improved the wooden dam. These improvements were completed about 1892, and shortly thereafter a village grew up with the Mill as the main attraction.

Life in this little town is described by Pearl Leffler, a granddaughter of John Owen, who now lives four and a half miles east of Stockton. She spent much of her early childhood at the Mill and remembers vividly the events which took place there. She relates the following:

"In the basement of the Mill was a wood lathe and a planing mill, where they made furniture and other kinds of wood products. They also had a cotton gin. There was a blacksmith shop, shoe shop, churn factory, and general store where they sold groceries, dry goods, drugs, hardware and burial caskets. They also had a patent on sad irons. There was an ice house, which was filled during the winter season with huge squares of ice taken from the creek or the near by pond in the winter. The ice blocks were carefully packed in saw dust till the next summer when it was used for ice cream and cold drinks.

The Mill did a large volume of business. It was run in shifts of men, twenty-four hours a day. Flour, feed and other milled products were shipped by railway all over the country. On Saturday and other busy days, I have seen the mill yard so full of horses, wagons, buggies and hacks that you could hardly get through. People would come from miles around to have their grain made into feed or meal, and would bring lunch and spend the day. I spent many happy childhood days there with my grandparents."

A post office was located at Owen's Mill for a number of years. The records of the Postal Department give the name of the village as Akard. The Office was located in the general store at first, but was later moved to a small building across the street to the south, just east of John Owen's house. It was discontinued altogether when the business was taken over by the rural route of Stockton.

Floods were always a threat to the residents of Owens Mill community. There were many over the years but shortly after the turn of the century there was one which was unusually destructive to the area. Lucy Owen, whose husband was one of the sons of the owner of the Mill was in this flood. She currently lives one mile east of Stockton; she describes her experience as follows:

"I just can't remember the date, but Frank and I hadn't been married very long. We were married in 1904. Frank and I and his mother, Bell, were the ones in our house. The water just kept getting higher and higher. We kept carrying things upstairs. We even took our chickens up where we had the wood stored. We could see Uncle Coon's folks in the house directly west of us. They didn't have any food and Russell Walker's children were there. This was after their mother had died.

"I remember Frank's mother had a cow by the name of Nell. She thought a great deal of this cow. At the height of the flood she began to scream, saying that poor Nell had been drowned and was being carried down the creek by the current. It turned out to be Joe Deatherage's house which was being washed away.

"Finally a boat arrived and rescued Uncle Coon's family. It was Russell Walker, and Attorney Bill Collins, who had volunteered to go with him. They started from the west side of the creek where Benton Hembree's farm was located. They had been warned against crossing the treacherous Sac River current, but Russell was determined to rescue his children. They later sent a boat for us. We landed on the hill were Kirkpatricks lived at the time and stayed with them till the waters went down."

Cedar County yesterday:

A view back at our rich heritage.

Commentary by Wilbur Miller *Photo Clayton Abbott*

ORGANIZATION OF CEDAR COUNTY

On March 28, 1845, the Missouri Legislature began setting the limits on several new counties, including Cedar County, which was formed from parts of Dade, Polk and St. Clair Counties, which had been organized shortly before. The name Cedar was used from the creek by that name and the fact that many evergreen trees grew along that stream. The earliest functions of the new county began upon the appointment by Missouri Governor John Miller, of three men to form the first county court, these men being Ezra Hamor from the Cedar Creek area, Thomas Jones from the southeast part of the county and James L. Henry from the southwest area. Thomas Jones was named the presiding judge. Other county officers appointed were, Joseph Allen, County Clerk, James Cawthon, Sheriff and John E. Hartley, Deputy County Clerk. Many problems faced the new court.

The first meeting of the new court was held at Crows Mill, three miles northeast of present Stockton, on Bear Creek, this very early mill becoming Owens Mill some years later. The old rock dam and the mill foundation are still intact. The first mill was destroyed by Shelby's raiders during the Civil War and rebuilt in 1868. The date of the first court meeting was April 7, 1845, and was in session for two days. An important decision made was that the home of Elisha Hunter, about 2 miles south of present Stockton, would be the temporary county seat and the next meeting would be in May at the Hunter home for the important matter of further county organization. Upon adjournment of the first meeting, the new officers received a salary of $2.00 per day.

OWEN'S MILL NEWS ARTICLES		
DATE: 20 Jan 1984	Contract No. DACW41-83-M-0568	DRAWN BY
Local newspaper accounts of Owen's Mill and its history		
		Figure 11

June 1886, J. R. Owen sold the two brothers his interest for $3500. John T. Owen died on 29 September 1903 and his shares were transferred to Flemming Owen for $3000 on 22 November 1905.

It is thought that the mill was damaged by a fire in 1907 or 1908. This would help explain a $7000 loan from T. R. Walker obtained 24 May 1909. While this loan was retired on 5 January 1910, Owen borrowed $3926 from the Stockton Exchange Bank the following day. Flemming Owen sold the property to the bank for $5318 on 13 March 1913.

Owen's Mill, 1914-present

On 1 April 1914, the bank sold the land to R. E. Ireson and S.E. Osborn for $3500. They sold it to W. L. McCurdy on 5 October 1916, who in turn transferred the property to Irvin E. Wilt and R. E. Mack on 27 November 1916. It is likely that Wilt and Mack made some improvements, as they used the property as collateral for a $3800 loan on 4 June 1919. Claud Moore bought the mill 3 November 1925 and sold it to Fred Ibach on 24 August 1931. Ibach restored the mill to produce ground wheat and corn.

Ibach and his son Otis (deed records say Arvil), ran the mill until 1935 or 1936. Arvil Ibach bought the mill from his father's estate on 23 March 1933 for $3500 and sold it to Claude Moyer on 1 October 1941. Cecil Pyle and Lon Baumgardner are believed to have run the mill during this time.

In 1945, Jim Ryan, a businessman from Bolivar, is reported to have contracted Robert Carver (1983) to tear down Owen's Mill for salvage. It is not clear what relation Ryan had to the mill, but the machinery was kept for scrap. Carver himself used the mill lumber to build a barn and salvage from a house in Akard (probably the Flemming Owen house) for a garage. At this time, the first story consisted of a stone-mill which ground corn and wheat (Carver 1983).

HPA personnel inspected Carver's barn and found that several rough cut oak 2 x 12's with circular saw marks were used in its construction. Its floor was made of walnut boards from the mill floor and the sheet metal roof was also obtained from the mill salvage (Carver 1983). It is evident that the facade recycled cut stone from the mill dam and/or the steam boiler enclosure.

Claud Moyer sold the land to Myrl and Almeda Stephenson on 1 June 1948. Donald and Almeda Bullard then acquired the land on 3 July 1961 for a recorded consideration of $850. The property was transferred through the Bullard family and their short lived Bear Creek Mill Enterprise until it came to Dick Bullard, the present owner. A small vacation cottage was constructed on top of the mill foundations in 1962.

Akard: A Late 19th Century Milling Community

The small community of Akard (also known as Owen's Mill) developed around the mill industry (Figure 12). It is apparent that this community consisted almost entirely of the original 5 acre tract of land of which the mill has always been part. Akard consisted of houses, businesses and other buildings which were owned and occupied by various members of the Owen family. The entire community was centered around the family business - Owen's Mill - and closely followed its rise and fall from the 1860s to just past the turn of the century.

The residence lying furthest to the west was that of F. B. Owen and the one next to it is shown as belonging to John T. Owen's widow, Belle. While it has been suggested that the remaining structure south of the road was a tannery, the size and shape of the lot may indicate that it was a residence. It is possible that a house to the east would have been occupied by J. R. Owen.

It is not known why the map in Figure 12 shows Bear Creek as Crabtree Creek; this is the only reference in the material reviewed to the creek with this name. "Owens Mills" is also an odd feature of this map, as the community is elsewhere consistently called Owen's (Owens) Mill or Akard.

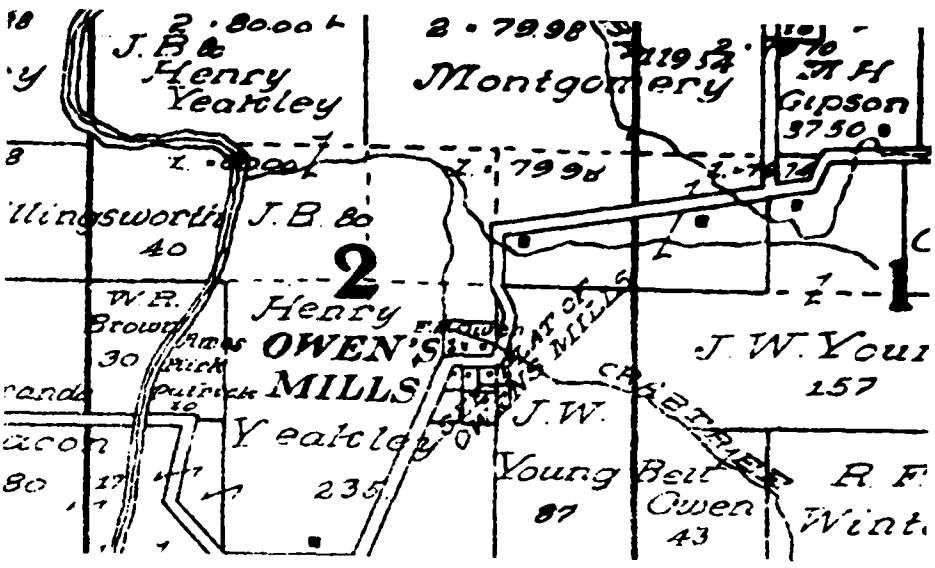
Several documents which relate to the period are in the possession of John Owen (John T. Owen's son). Four photographs show the mill (Figure 13a and 13b), John T. Owen's family (Figure 13c) and his house (Figure 13d). There are also two ledgers, one of the mill dating from 1881 to 1888 and an 1892 store day book.

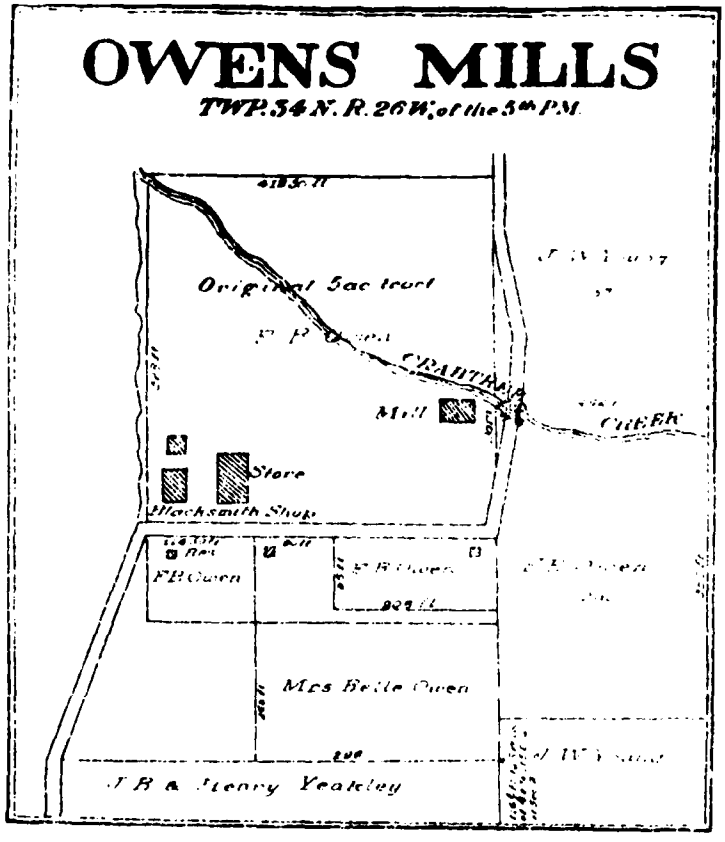
The earliest photograph (Figure 13a), taken in the spring, has "Owen's Mill About 1880" written on the back. It provides an idea of size and construction of the mill -- a three story clapboard building with an addition over the wheel-race. Doors on the north side may have been used to transfer grain between floors before elevators were added. A small outbuilding lies to the east of the mill.

This photograph also shows pipes and stacks connected to the steam boiler. Since no steam is escaping from the pipes and there is turbulence below the dam, the water wheel must been providing power at the time that this photograph was taken.

The second photograph (Figure 13b) was taken in the winter and shows the bridge over Bear Creek. This photo must postdate 1905, when the bridge was built. Before this time, a ford approximately 50 m downstream was used to cross the creek. Logs were installed as a base for the ford and what is believed to be some of them are visible at low water.

Between the times that the two pictures were taken, a fish run had been constructed over the dam. Since steam can be seen escaping from a small pipe on the west side of the mill, it is likely that the steam boiler was providing the necessary power (Figure 13b).



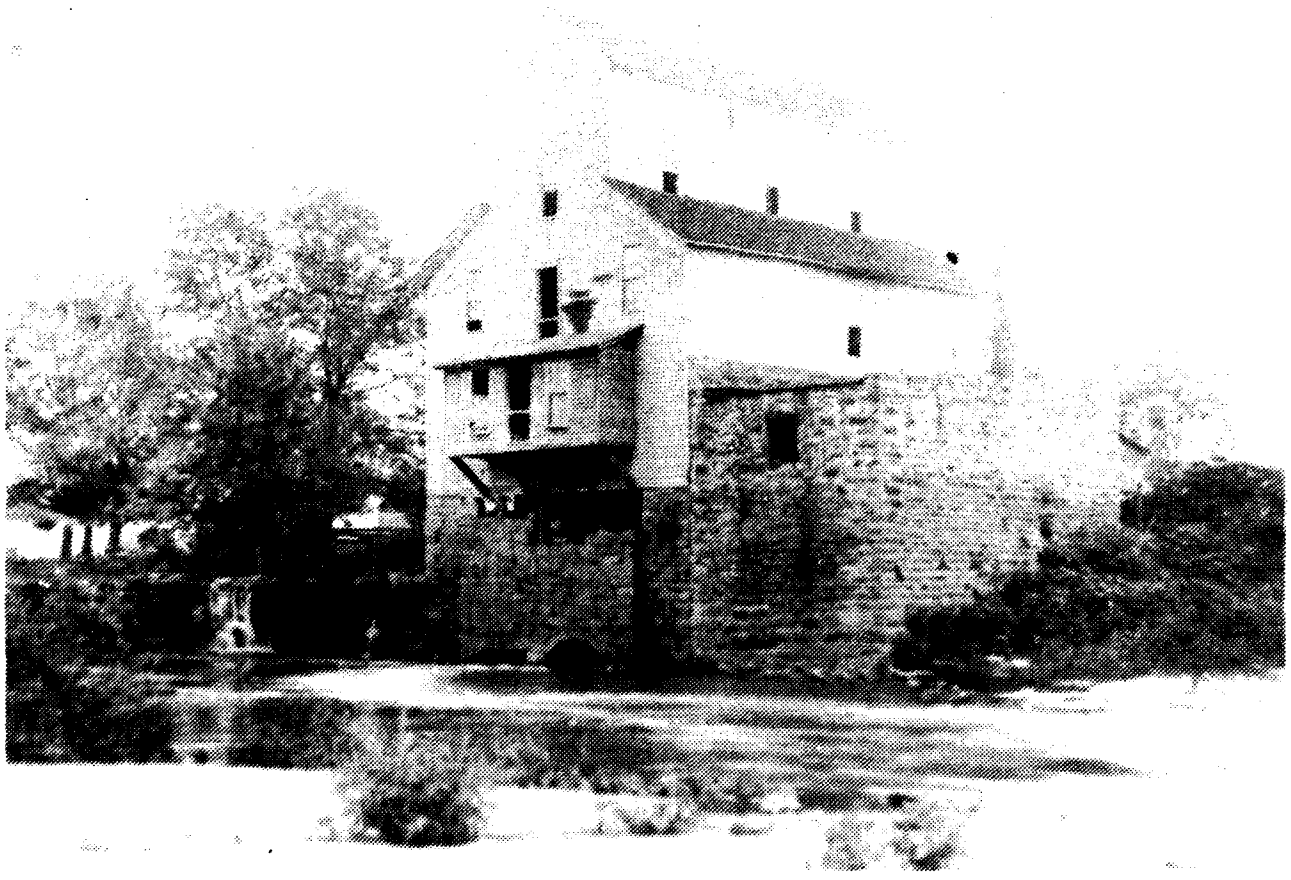


OWEN'S MILL PLAT MAP

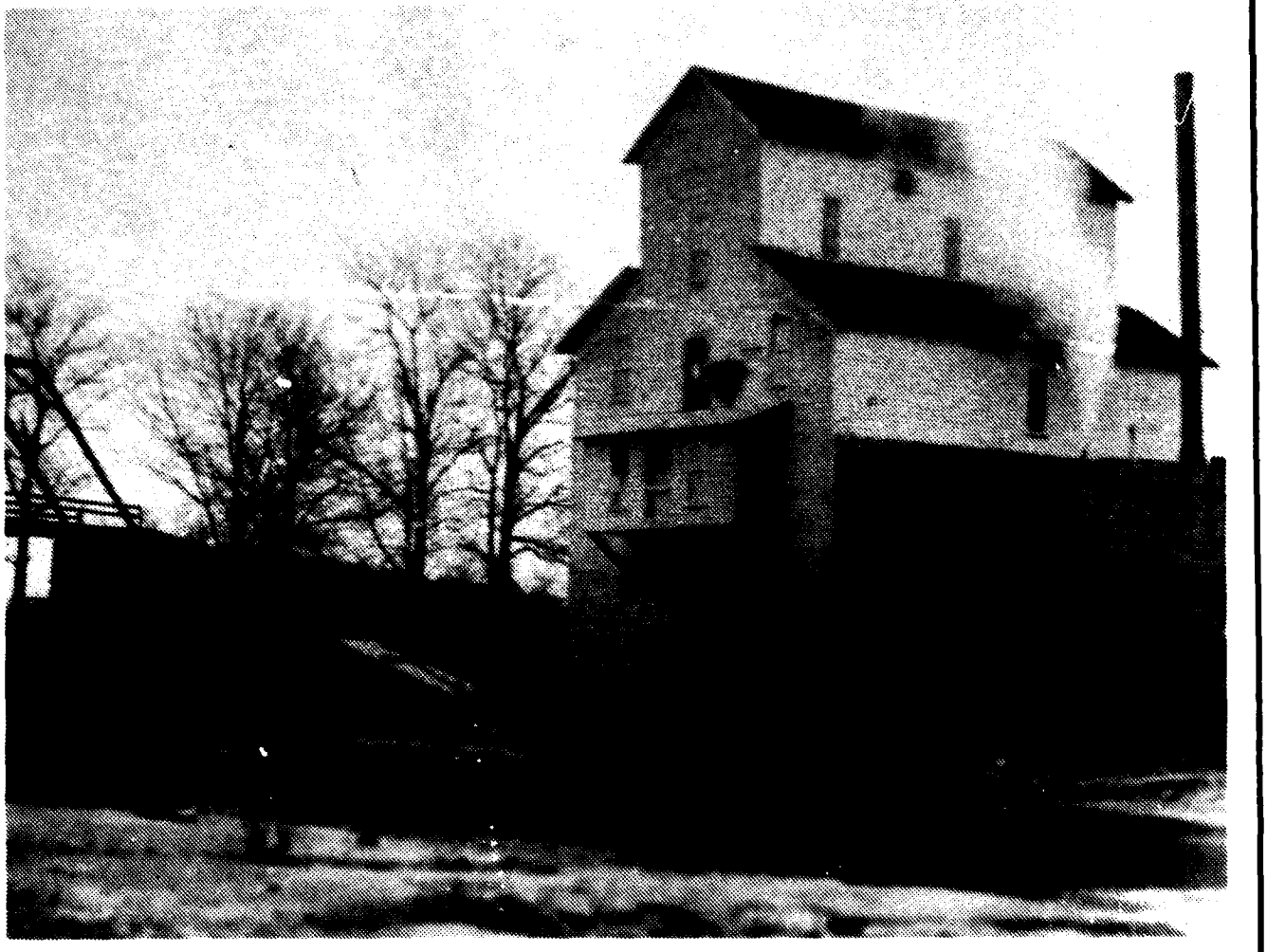
SCALE: no original	Contract No. DACW41-83-M-0568	DRAWN BY
DATE: 20 Jan 1984		

1908 Plat Map showing Owen's Mill and the Akard community

Figure 12



OWEN'S MILL		
		DRAWN BY
DATE: 20 Jan 1984	Contract No. DACW41-83-M-0568	
Photograph of Owen's Mill during the 1880s		
		Figure 13a



OWEN'S MILL		
		DRAWN BY
DATE: 20 Jan 1984	Contract No. DACW41-83-M-0568	
Post 1905 photograph of Owen's Mill		
		Figure 13b

OWEN'S FAMILY

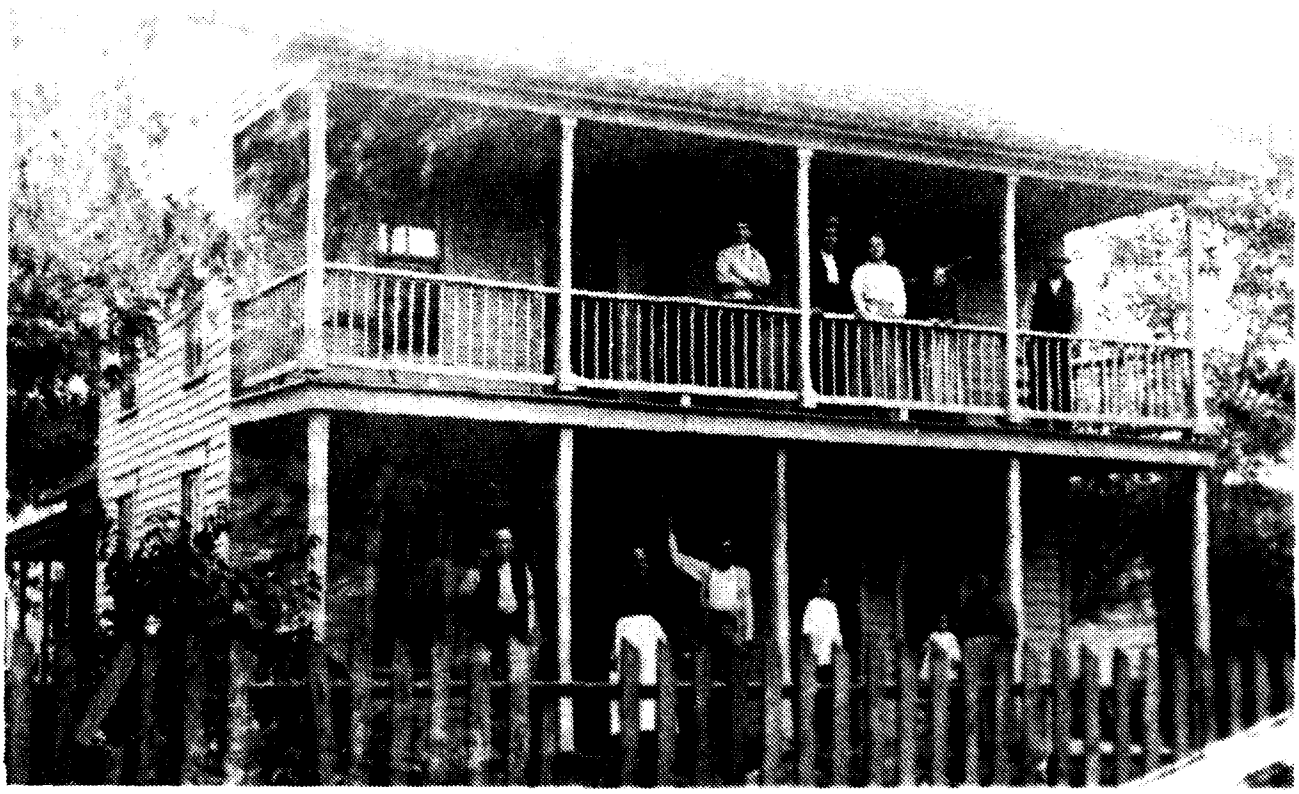
DATE: 20 Jan 1984

Contract No. DACW41-83-M-0568

DRAWN BY

Photograph of John T. Owen's family around 1880. (back row L-R: Amy, Nell, Sadie; front row: John, Frank, Belle)

Figure 13c

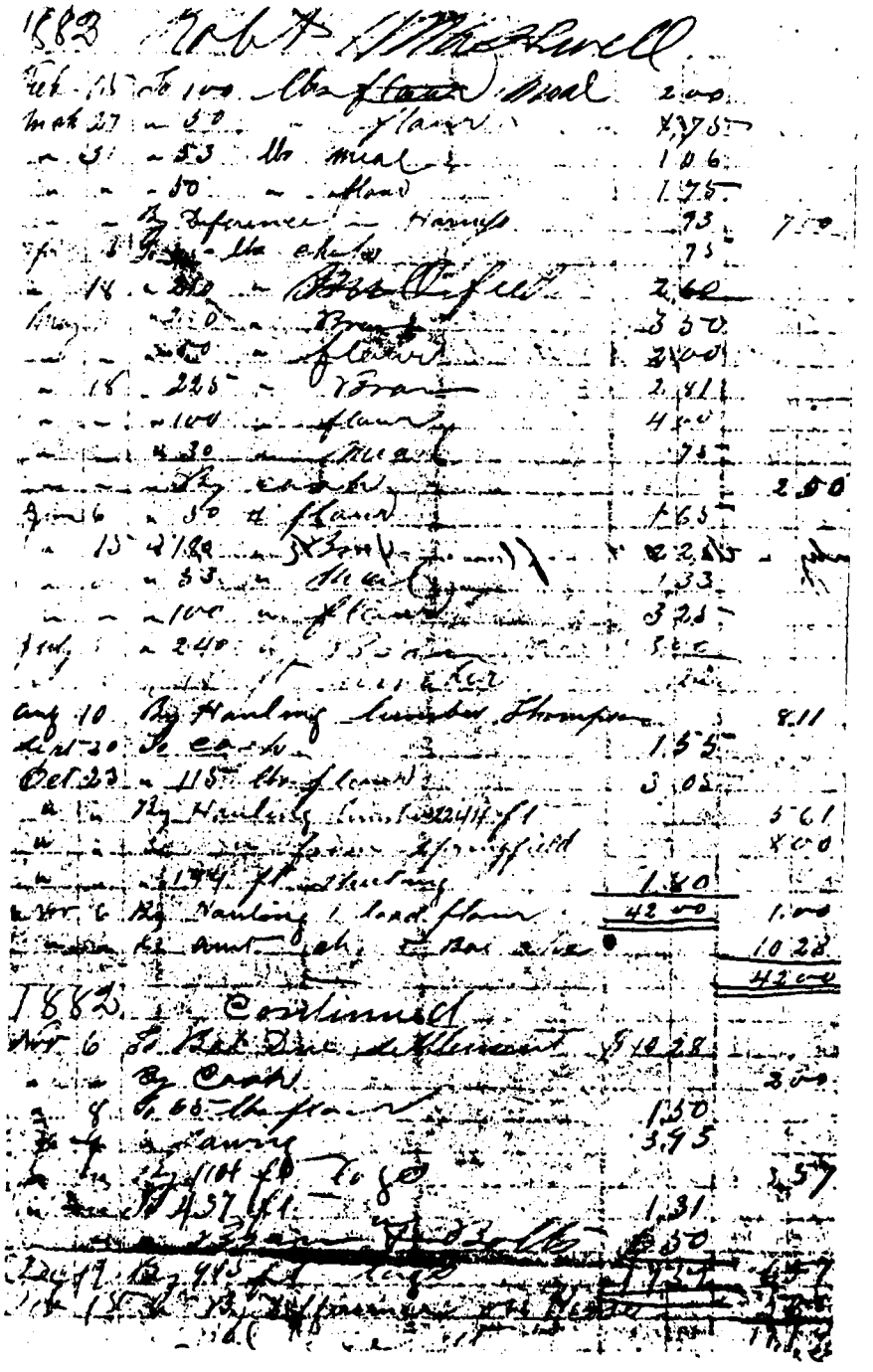


OWEN'S RESIDENCE		
DATE: 20 Jan 1984	Contract No. DACW41-83-M-0568	DRAWN BY
19th Century photograph of John T. Owen's Akard residence		
		Figure 13d

A page of the mill ledger, reproduced in Figure 14 and transcribed below, illustrates its relationship with area farmers in 1882:

1882	Robt MacHuell		
Feb 15	To 100 lbs Flour Meal	2.00	
Mch 27	" 50 " flour	1.75	
" 31	" 53 lbs meal	1.06	
" "	" 50 " flour	1.75	
" "	By Diference in Harness	.93	7.00
Apr 5	To 75 lbs chops	.75	
" 18	" 210 " Mill feed	2.60	
May 11	" 280 " Bran	3.50	
" "	" 50 " flour	2.00	
" 18	" 225 " Bran	2.81	
" "	" 100 " flour	4.00	
" "	" 30 " meal	.75	
" "	" By cash		2.00
June 6	" 50 # flour	1.65	
" 15	" 180 " Bran	2.25	
" "	" 53 " Meal	1.33	
" "	" 100 " flour	3.25	
July 3	" 240 " Bran	3.00	
" 8	" 18 ft lumber	.22	
Aug 10	By Hauling lumber Thompson		8.11
Sept 20	To cash	1.55	
Oct 23	" 115 lbs flour	3.05	
" "	By Hauling lumber 2244 ft		5.61
" "	" " from Springfield		8.00
" "	" 144 ft sheeting	1.80	
Nov 6	By hauling 1 load flour	42.00	1.00
" "	" amt chg to Balance		10.28
			42.00
1882	Continued		
Nov 6	To Bal Due Settlement	$10.28	
" "	By Cash		2.00
" 8	To 65 lbs flour	1.50	
" 9	in sawing	3.93	
" "	By 1104 ft logs		3.57
" "	To 437 ft	1.31	
" "	" Bran & Bolts	.50	
Dec 12	By 915 ft logs	17.52	6.57
Feb 15	" By Difference on Horse	5.00	
	Balance Due set		17.14
			38
			17.52

In 1882, Robert MacHuell sold a large amount of grain to the mill: 680 pounds of flour, 130 pounds of meal, 925 pounds of bran, 75 pounds of chops (cracked corn) and 210 pounds of mill feed. He probably received some processed grain for his own use. He also sold logs to the mill, had some sawing done there, and hauled lumber for wages. The mill bought goods such as harness



MILL LEDGER		
DATE: 20 Jan 1984	Contract No. DACW41-83-M-0568	DRAWN BY
Mill ledger page with transactions of Robert MacHuell		
		Figure 14

and horses from him and advanced him money. At least a few store items, such as bolts were also sold.

In 1882, the mill had an account with Briscoe and Corbins. An examination of their account in the mill ledger, reproduced in Figure 15 and transcribed below, documents the goods that local merchants obtained from the mill:

153

1880	Briscoe & Corbon		
Apr 13	To amt Briscoe MD	166.17	
" 17	By amt F Owen		15.00
" "	" check C.C.B.		151.17
1882	Continued		166.17
Apr 18	To 7.50 lbs flour	24.37	
" "	By 71 # meat		10.50
" "	" Cash		13.87
1882	Continued		24.37
May 5	To 10.00 lbs flour	32.50	
" "	By cash		45.00
" 9	To 10.00 lbs flour	37.50	
" 10	" 10.00 " "	37.50	
" 11	" 9.50 " 3x flour	28.50	
" "	By check		50.00
May 17	To 2.50 lbs 4x flour	8.875	
" 19	" 9.50 " 3x flour	33.25	
" "	By cash	202.49	50.00
" 5	" cash Paid		46.99
1882	Continued		202.49
June 6	To 12 # flour	36.00	
" 14	" 2.50 " flour	7.50	
" "	" 15.00 " "	45.00	
" "	By 1.00 # to younger		3.00
" "	" Cash		30.00
" 24	To 14.50 # flour	43.50	
" "	By Cash	132.00	51.00
" "	Cash to JTO		48.00
			132.00
1882	Continued		
July 7	To lumber	4.00	
Oct 23	To 8.00 lbs flour	18.80	
" 31	" 5.00 " "	11.75	
" 25	" 20 Bran meal	9.30	
Nov 4	" 3.00 # flour	7.05	
" "	" 15 Bran meal	6.00	
" 6	" 9.50 # flour	22.33	
" 17	By cash		40.00
" "	To 5.00 # flour	11.75	
	By cash	90.98	50.98
			90.98

1880 Briscoe & Corbins

Apr	13	To amt Briscoe M.D.	166.17	
"	17	By amt ...		15.00
	"	" Check		151.17
				166.17
1882		continued		
Apr	15	To 750 lbs flour	24.37	
"	"	By 71 # ...		14.50
"	"	" Cash		[illegible]
1882		Continued		
May	5	To 1000 lbs flour	32.50	
	"	By cash		45.00
"	9	To 1000 lbs flour	37.50	
"	10	" 1000 "	37.50	
"	11	" 950 " 3x flour	28.50	
	"	By Check		50.00
May	17	To 261 lbs 4x flour	8.82½	
"	19	" 950 " 3x flour	33.25	
"	19	By cash	202.49	50.00
"	"	" Cash Paid		46.99
				202.49
1882		continued		
June	6	To 1280 # flour	36.00	
"	14	" 280 " flour	7.50	
"	"	" 1500 " "	45.00	
"	"	By 100 # to younger		3.00
"	"	" Cash		30.00
"	24	To 1450 # flour	43.50	
"	"	By cash	132.00	57.00
	"	... 9.50		41.00
				132.00
1882		Continued		
July	7	To lumber	4.00	
Oct	23	To 800 lbs flour	18.80	
"	31	" 300 " "	11.75	
"	25	" 20 bus meal	9.30	
Nov	4	" 300 # flour	7.05	
"	"	" 16 bus Meal	6.00	
"	6	" 950 # flour	52.83	
"	17	By cash		40.00
"	"	" 500 # flour	11.75	
		By cash	90.98	50.98

MILL LEDGER

DATE: 20 Jan 1984	Contract No. DACW41-83-M-0568	DRAWN BY

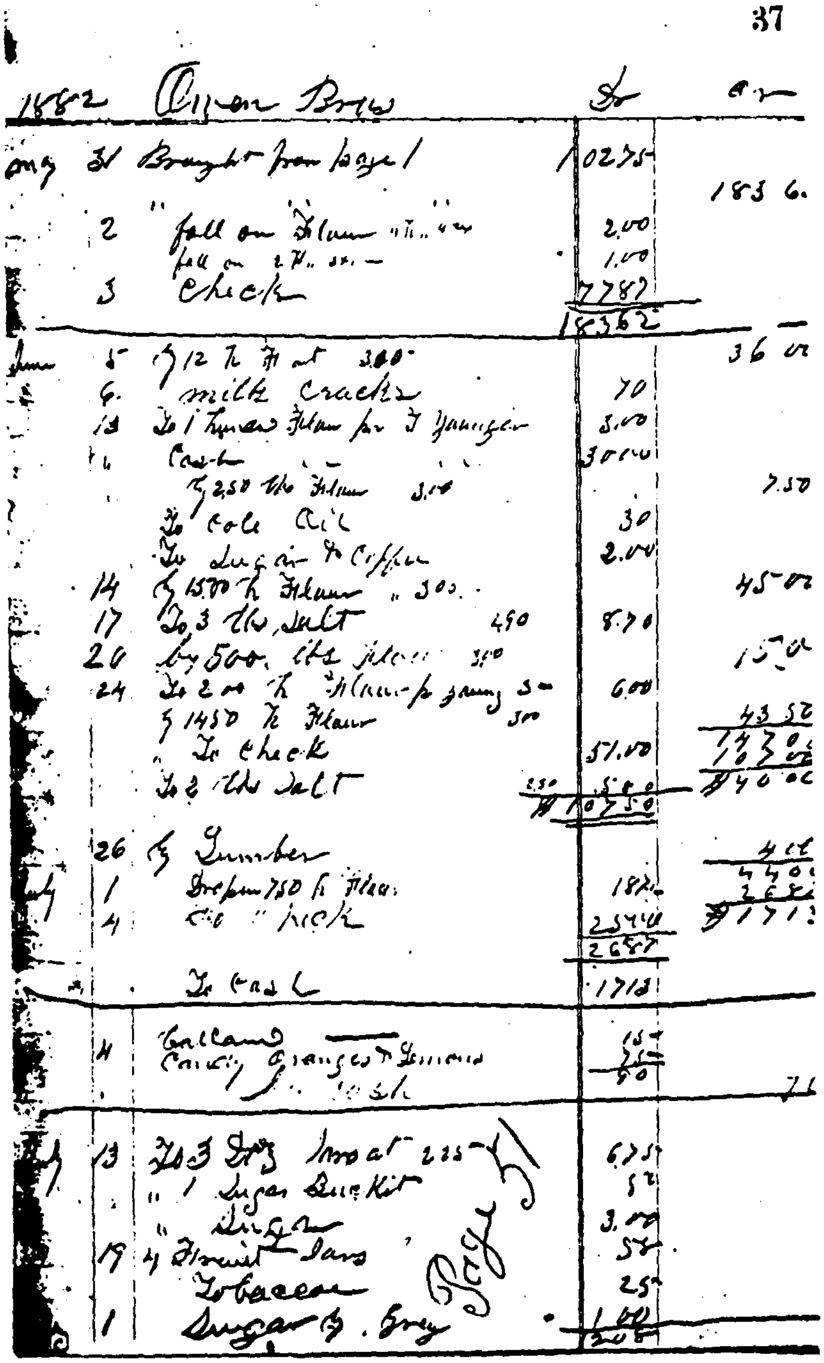
Mill ledger page with transactions of Briscoe and Corbins

Figure 15

At present, it has not been possible to establish whether a separate store existed at Akard prior to 1892. The types and quantities of goods bought from local merchants by the mill may indicate its presence or absence. The corresponding account in the Briscoe and Corbins store day book, reproduced in Figure 16 and transcribed below, illustrates these transactions:

37

1882	Owen Bros	To	Cr
May 31	Brought from page 1	102.75	
	" "		183.62
2	ball on Flour 4h 4x	2.00	
	ball on 2H " 3x	1.00	
3	check	77.87	
		183.62	
June 5	by 12 h Fl at 3.00		36.00
6	milk cracks	.70	
13	To 1 hunds Flour pr T Younger	3.00	
"	Cash	30.00	
"	by 2.50 lbs Flour 3.00		7.50
"	To Cole Oil	.30	
"	To Sugar & Coffee	2.00	
14	by 15.00 h Flour 3.00		45.00
17	To 3 lbs Salt 2.90	8.70	
20	by 5.00 lbs Flour 3.00		15.00
24	To 2.00 h Flour p Young 3.00	6.00	
	by 14.50 h Flour 3.00		43.50
	To check	51.00	147.00
			107.00
	To 2 lbs Salt 2.90	5.80	$40.00
		$107.50	
26	by Lumber		4.00
July 1	Dropin 7.50 h Flour	1.87	44.00
4	by Check		26.87
		25.00	$17.13
		26.87	
	To Cash	17.13	
4	ballance	.15	
	Candy Oranges & Lemons	.75	
		.90	
	by cash		.90
July 13	To 3 Doz Jars at 2.25	6.75	
	" 1 Sugar Bucket	.50	
	" Sugar	3.00	
19	4 Fruit Jars	.58	
	Tobacco	.25	
Aug 1	Sugar ? Grey	1.00	
		12.08	



STORE DAY BOOK

DATE: 20 Jan 1984	Contract No. DACW41-83-M-0568	DRAWN BY

Briscoe and Corbins store day book page with Owen's Mill account

Figure 16

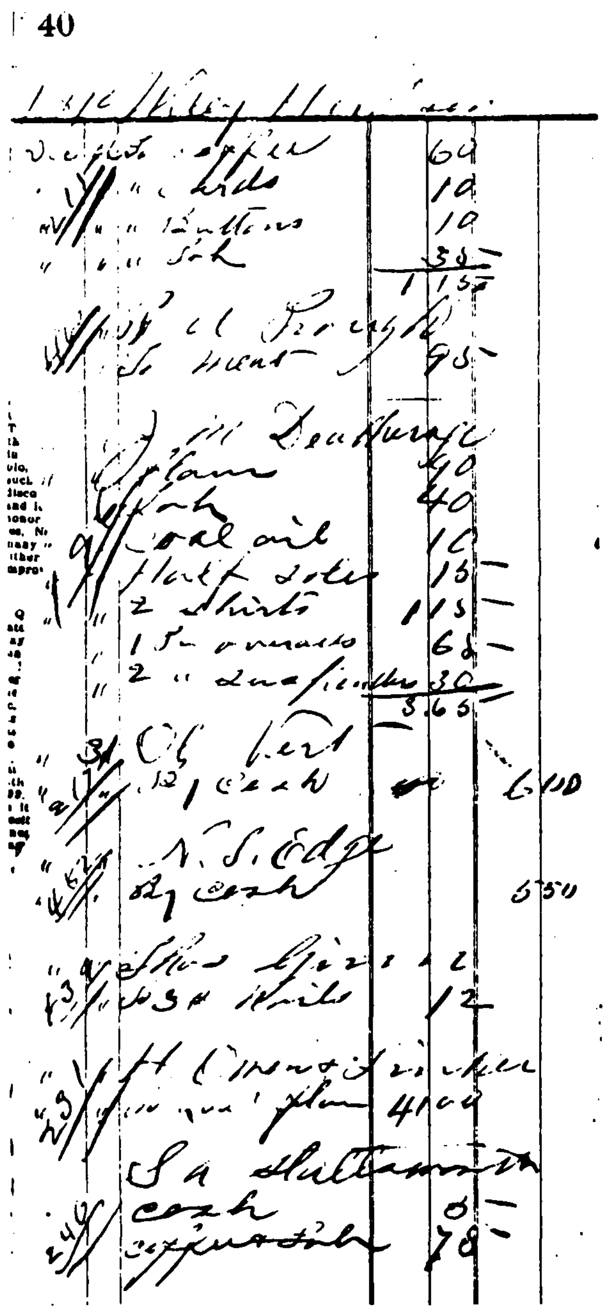
These data indicate that stores were buying quantities of flour and some lumber from the mill. The mill, in return, was receiving cash and a few goods from the stores. The amount of goods obtained from the store would indicate that they were for the personal use of the Owen family instead of resale. There was probably not a store associated with the mill or in Akard at this time.

The Briscoe and Corbins store day book also provides clues on the actual operation of the mill. On page one of the day book, dating to 1 March 1882, the account is referred to as Owen & Bros and later as Owen Brothers. Entries mention both John T. Owen and F. B. Owen, so it is apparent they were jointly running the mill at this time.

Many items in the Owen's store would have to be ordered from as far away as Kansas City or Jefferson City. A page of the 1892 store day book reproduced in Figure 17 and transcribed below, reveals only one item, flour, that may have been processed at the mill:

40

1892		Wiley Hudson		
Dec.	26	To coffee	.60	
"	"	" cards	.10	
"	15	" Buttons	.10	
"	"	" L??	.35	
		F A Prough		
"	"	To Meat	.95	
"	"	J M Deatherage		
"	"	Flour	.90	
"	"	L??	.40	
"	"	coal oil	.10	
"	"	Half soles	.15	
"	"	2 shirts	1.15	
"	"	1 Pr Overalls	.65	
"	"	2 " Suspenders	.30	
			3.65	
"	31	01 Vert		
"	"	By Cash		6.00
"	"	N.L. Edge		
"	"	By Cash		5.50
"	"	Thos Ginn		
"	"	To 3# Nails	.12	
"	"	H. Owen & Linker		
"	"	To Load Flour	41.00	
"	"	S A Stallsworth		
"	"	Cash	.05	
"	"	coffee & L??	.75	



STORE DAY BOOK

DATE: 20 Jan 1984	Contract No. DACW41-83-M-0568	DRAWN BY

Probable Owen's Mill store day book

Figure 17

It is believed that this store day book, now in the possession of John Owen, is from the Owen Brother's store, but this is not certain. Older residents of the area report that there were one or two stores in Akard. It is likely, however, that the store was first established within the mill building itself and that separate books were not kept. As its business and inventory grew, it could have moved from the mill and into the structure shown on the 1908 plat sheet (Figure 12).

Abbott (1967:178-182) documents the remembrances of several people who lived or traded in Akard. Most of these events appear to date to the time Flemming Owen was running the mill, probably soon before or after the death of John T. Owen.

Abbott (1967:179) reports that the brothers constructed (rebuilt or improved?) the mill around 1891-1892. It is also believed that the stone dam was built at this time. Whatever the circumstances, the addition of a stone dam would indicate that a new, more efficient power source was installed at the mill.

Pearl Leffler, a resident of Stockton, reported that a wood lathe and planing mill was situated in the basement, manufacturing furniture and other kinds of wood products. She also remembers a cotton gin, blacksmith shop, shoe shop, churn factory, general store and ice house as being associated with the mill. The post office was originally in the general store, but later moved to a small building across the street, just east of John T. Owen's house. The mill was a very busy place (Abbott 1967:179):

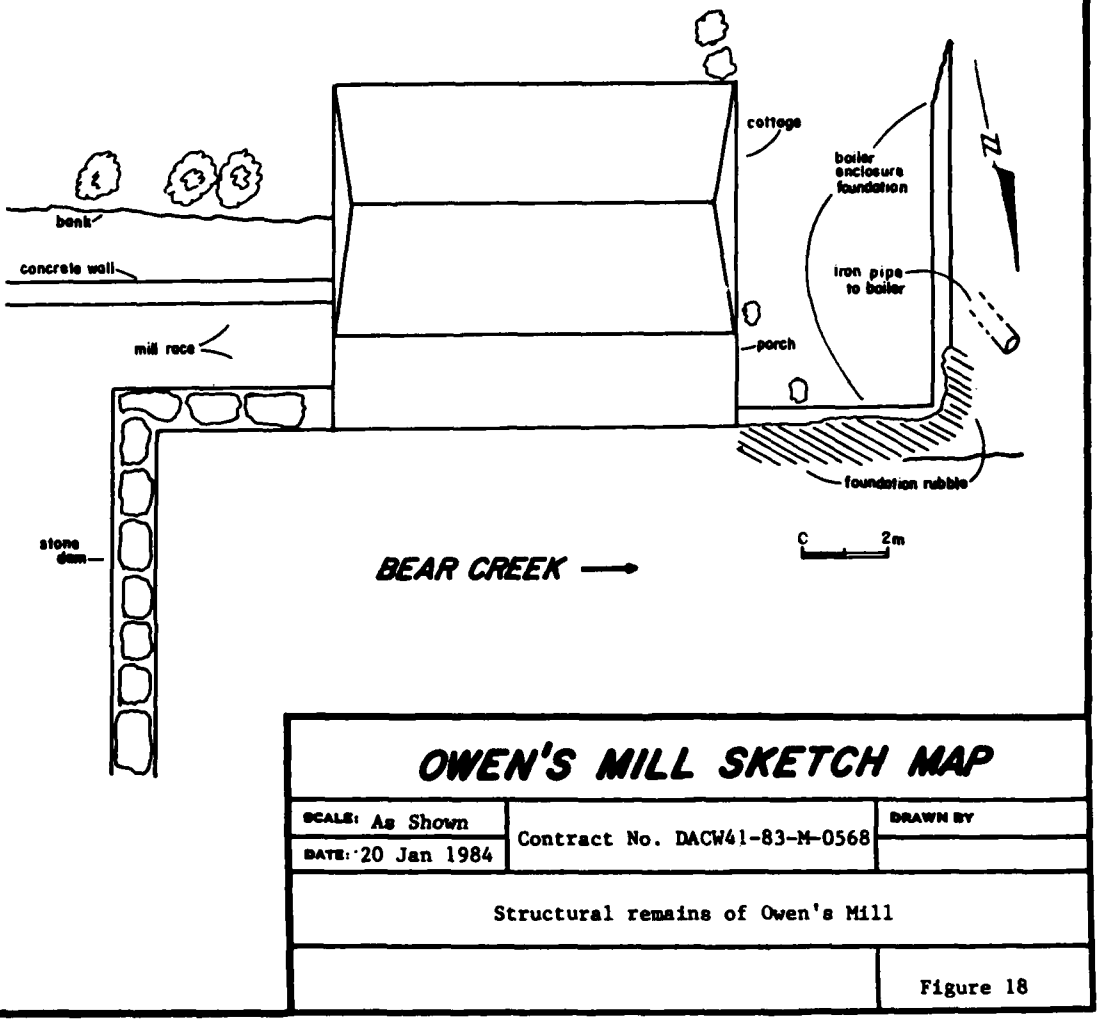
> The mill did a large volume of business. It was run in shifts of men, twenty-four hours a day. Flour, feed, and other milled products were shipped by railroad all over the country. They were hauled by wagon and team to the railroad station at Humansville, then shipped out by car load. On Saturdays and other busy days, I have see the mill yard so full of horses, wagons, buggies, and hacks, that you could hardly get through. People would drive for miles around to bring their grain to be ground for feed and flour. They would bring their lunch and spend the day.

Lucy and Frank Owen were married in 1904, soon after his father's death. They lived with his mother, Belle, in the house just east of Flemming Owen's residence (Abbott 1967:179-180). Abbott (1967:180-182) remembers Akard from when he was a young boy. "Coon" Owen was the miller and often played practical jokes on his customers. He is also remembered as a kind and generous man. At this time, the only store in Akard was in a building away from the mill. While there was only one blacksmith's shop, several operators are remembered.

There is no later mention of Akard after Flemming Owen sold the land in 1913. The post office was closed in 1911, when it was taken over by a rural route out of Stockton. This may indicate that the post office was not as busy or that people no longer came to Akard to do their business. Perhaps the mill had been closed.

On Site Investigations

All that remains of the mill itself are the various foundations (Figure 18, Figure 19a-b). This includes the wheel race, sluiceway and the rock enclosure that surrounded the steam boiler. Evidently, this rock wall has been dismantled to a level below the window in Figure 13a.



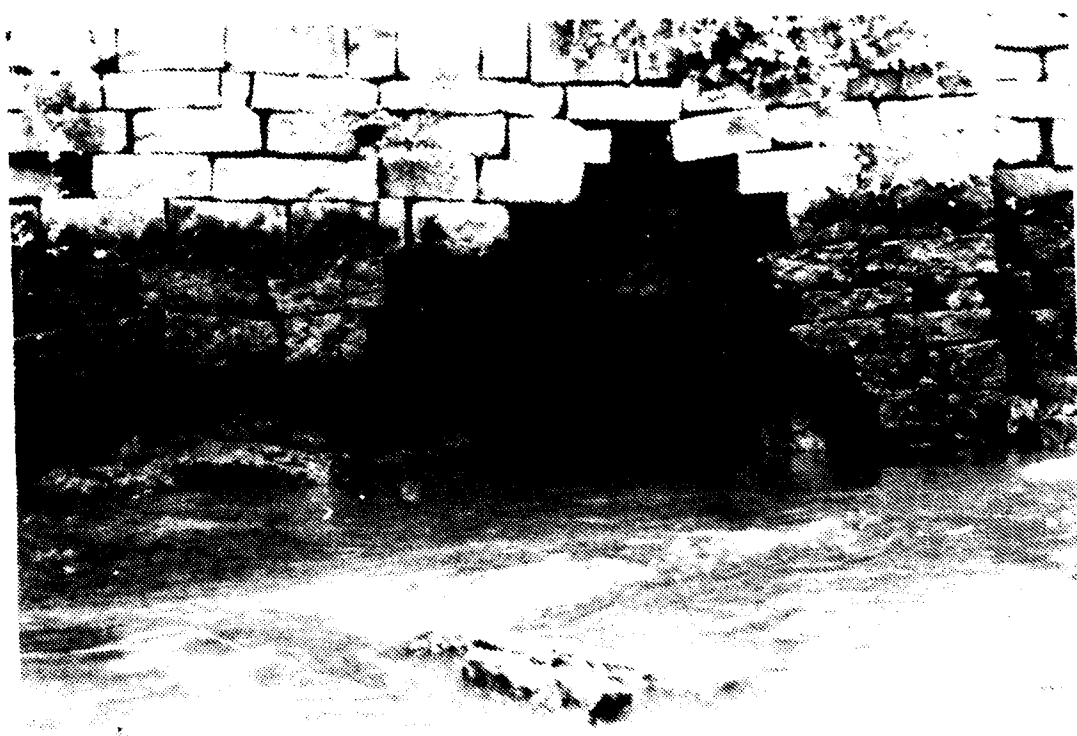
OWEN'S MILL SKETCH MAP

SCALE: As Shown	Contract No. DACW41-83-M-0568	DRAWN BY
DATE: 20 Jan 1984		

Structural remains of Owen's Mill

Figure 18

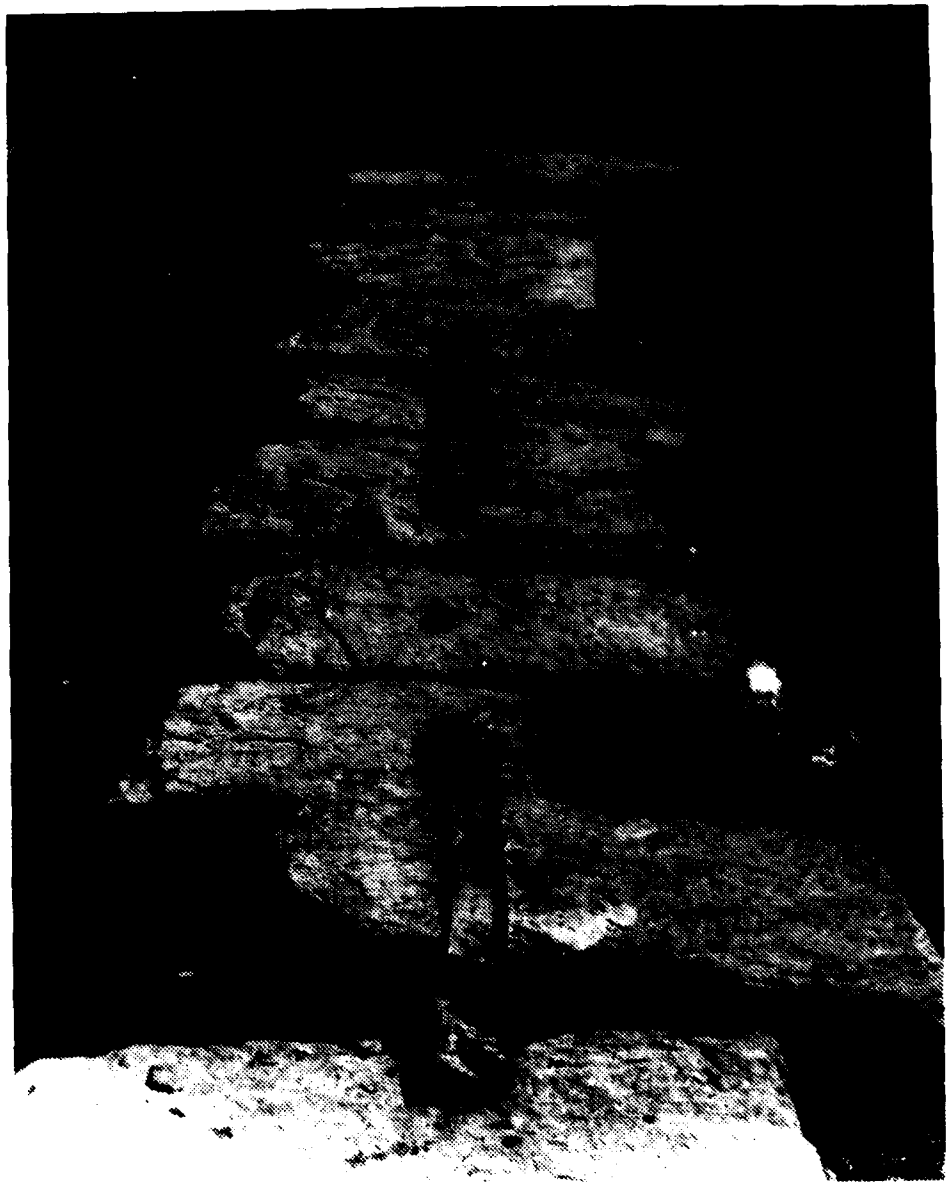
a



b

OWEN'S MILL		
DATE: 20 Jan 1984	Contract No. DACW41-83-M-0568	DRAWN BY
View of Owen's Mill from north bank of Bear Creek		
		Figure 19a-b

OWEN'S MILL DAM		
DATE: 20 Jan 1984	Contract No. DACW41-83-M-0568	DRAWN BY
Face of cut stone dam across Bear Creek at Owen's Mill		
		Figure 19c

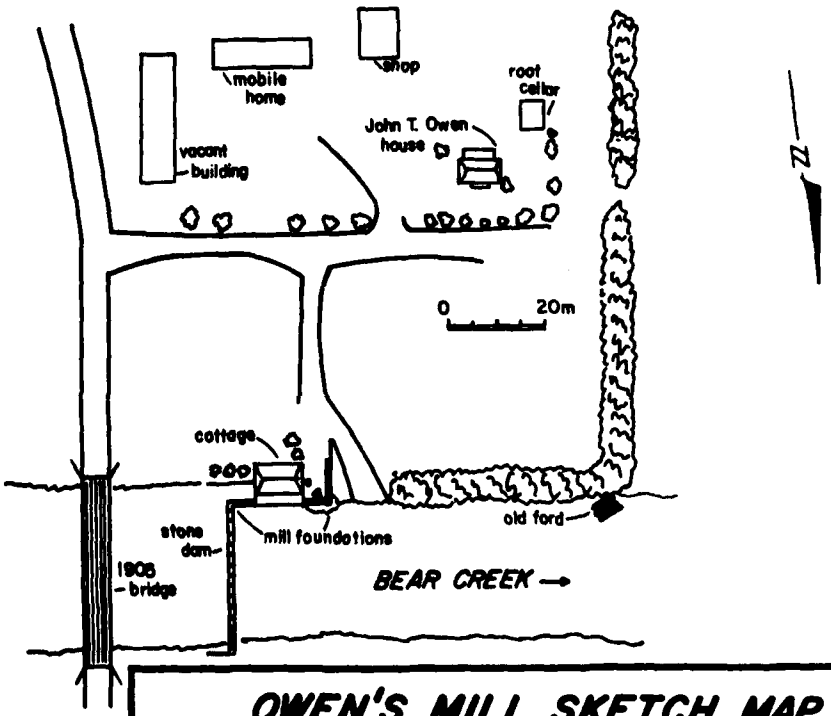


OWEN'S MILL DAM		
DATE: 20 Jan 1984	Contract No. DACW41-83-M-0568	DRAWN BY
Top edge detail of dam at Owen's Mill		
		Figure 19d

OWEN'S RESIDENCE		
DATE: 20 Jan 1984	Contract No. DACW41-83-M-0568	DRAWN BY
Akard residence of John T. Owen as it appears today		
		Figure 19e

The outstanding existing feature still present at Owen's Mill is the dam (Figure 19c). This structure extends the width of Bear Creek and funnels water into the 2 m wide sluiceway. It is approximately 2 m high, 30 m long and 1 m thick. The cut stones are secured (to the bedrock?) by iron bolts approximately 2 cm in diameter. To help hold the stones in place, metal bands 14 cm wide and 1 m long were installed along the top tier (Figure 19d).

An examination of the vicinity revealed only one standing structure related to Owen's Mill (Figure 19e; Figure 20). It was not possible to identify the foundations or locations of the other buildings present on the 1908 plat. It was also not possible to completely map the mill foundations because at least their southern exposure has been covered by pasture. The cottage, built in 1962, covers much of the remaining mill foundation (see Figure 19a).



OWEN'S MILL SKETCH MAP

SCALE: as shown	Contract No. DACW41-83-M-0568	DRAWN BY
DATE: 20 Jan 1984		

Sketch map of the Akard vicinity

Figure 20

There are considerable numbers of artifacts eroding from the south bank of Bear Creek up to 70 m downstream from the mill in the vicinity of the historic ford (see Figure 20). Among the artifacts observed are bottles (1860-1900s) and other fragments of glass, ceramics, horseshoes, trace chains and numerous artifacts related to the mill, such as wheels and elevator buckets. This area has been used until recently as a dump and there is a potential for substantial buried deposits here.

Evaluation of the Available Data

The structure known as Owen's Mill (23CE393) is no longer standing; only the mill dam and parts of the various foundations remain. While there has been a mill here from 1842 to 1945, most available data relate to Akard -- the milling operation run by the Owen family from the late 1800s to 1913.

A mill ledger and store day books dating to this period have been located. These documents can provide an economic picture of the mill and associated community during the later part of the 19th century. Local historians such as Don Bullard and the State Historical Society may provide additional documentation.

There is a potential for extensive buried deposits along the banks of Bear Creek which are related to Akard and other episodes in the mill's history. The structure on top of the mill foundations and the surrounding field covers debris and possible earlier building stages of the mill. Relatively undisturbed primary deposits should lie nearby the mapped structures. Secondary deposits related to these structures and primary deposits related to the mill and any existing unmapped structures have been identified along the banks of Bear Creek.

Impacts, Significance and Recommendations

The easement acquired by the COE along Bear Creek runs adjacent to the mill but excepts the "existing dam, a mill known as 'Owen's Mill', including appurtenant structures" (Kansas City District Sloughing Easement Estate for Tract 2308E, no date). Although no known sites of other Akard-related structures are included, associated dump areas along the creek are within the easement. Additional discharge from Lake Stockton will raise the water level about two feet over the dam.

Both the mill itself and the dam exhibit a loss of stones and resulting structural weakening. The top edge detail of the dam structure is illustrated in Figure 19d. Between the time that photograph was taken in May 1983 and a return visit to the site in January 1984 one of the iron support straps became dislodged and at least one of the top stones was lost. Other evidence pointing toward a weakening of the mill structure generally can be seen from a comparison of Figure 13a and b with Figure 19a and b. The once perfectly formed arched water outlet on the stream side of the wheel enclosure is badly deteriorating at least in part due to the frequently fluctuating water levels (note the high water mark in Figure 19b). In addition, there are considerable numbers of artifacts eroding from the banks of the creek. Although this may not be due to power generation at Lake Stockton, it is clear that

an increase in flow will accelerate the erosion and have an adverse impact on the archeological component of the site.

Based on the assembled data, we conclude that Owen's Mill(23CE393) represents a significant historic and archeological resource that when viewed from a local and regional perspective has the potential to contribute important information relating to 19th century centers of commerce in this part of west central Missouri. While the Owen's Mill structure represented in Figure 13a and b was dismantled by Robert Carver's salvage operation of 1945 there remains a wealth of accessible data relating to the technical aspects of the mill itself and how the mill operated in and became the focal point of the rural community of Akard. These data range in character from the published histories to historic photographs and ledgers to what we can see of the remaining mill foundations and the dam structure to what lies below the ground in archeological context. Although the building salvage impacted the superstructure of the mill complex, this alone did not affect the integrity of the site to a point where no further information important in history could be gathered.

The rationale for our significance argument rests on the premise that Owen's Mill, in its relationship with the Akard community, has the potential to yield important data relating to the economic, social and industrial history of the area. The known ledgers, for example, contain a wealth of information on the availability of various goods and services, on the mutual extension of commercial credit between merchants and on the local system of barter. From a social perspective the various ledger accounts as well as the known residents of Akard provide an index of the draw the goods and services offered by the mill and community had on the regional populace. A comparison of the demographics evidenced by the mill store day book with that of the Briscoe and Corbins ledger should reveal substantially different patterns of customers along with variable purchasing patterns which correlate closely with the kinds of specialized goods and services offered. A study of the physical and archeological character of the mill complex itself should lead to a fuller understanding of the various building and reconstruction episodes thus far documented. Such a study would also add a good deal of data relating to more technical aspects of the mill operation such as the kind of machinery in use throughout the life of the mill (e.g., what kinds of wheels were employed for power generation, what kind of turbine was eventually used and perhaps what kind of burr stones ground the grains into flours and feeds). Of similar interest would be the technical character of the mill dam including whether it actually replaced a one time wooden structure, whether evidence of the wooden dam remains and whether the dam was constructed with Evans' (1850) general rules in mind. Each of these individual studies should in turn provide a basis for predicting (through a close analysis of the various ledger documents) and then testing the archeological consequences of such a 19th century milling and trading operation. This would allow a better understanding of Owen's Mill while at the same time

providing information with which to better interpret similar sites for which only archeological data are available.

We therefore recommend that Owen's Mill (23CE393) be nominated to the National Register of Historic Places pursuant to 36CFR60.4(d). A National Register form has been prepared by HPA for use by the District in its request for a Determination of Eligibility.

It is the opinion of Historic Preservation Associates that an adequate program to mitigate adverse impacts which the development of the Stockton Lake project may have on Owen's Mill should include a number of tasks:

1. A complete review of all available documents and photographs relating to the operation of the mill, its ownership history and its architectural history.
2. A program of architectural photogrammetry focusing on the remaining foundations and dam structure.
3. Drawings conforming to Historic American Buildings Survey standards of the mill foundationsand the dam.
4. A magnetometer survey of the mill area as well as the banks of Bear Creek up to the historic ford.
5. A multistaged program of archeological data recovery including complete outlines of the mill foundations and other mill related features.
6. A plan of *in situ* preservation/stablization of the mill.

REFERENCES CITED

Abbott, Clayton
1967 Historical Sketches of Cedar County, Missouri. Vedette Publishing Company. Greenfield, Missouri.

Abbott, Clayton and Lewis B. Hoff
1971 Missouri History in Cedar County. Vedette Publishing Company, Greenfield, Missouri.

Anderson, Ephraim McD.
1868 Memoirs: Historical and Personal; Including the Campaigns of the First Missouri Confederate Brigade. Second Edition. Times Printing Press. St. Louis, Missouri. Reprint Edition 1972 by Morningside Bookshop. Dayton, Ohio.

Bevier R. S.
1879 History of the First and Second Missouri Confederate Brigades 1861-1865 and From Wakarusa to Appomattox, A Military Anagraph. Bryan, Brand and Company. St. Louis.

Carver, Robert
1983 Personal Communication to David Quin of Historic Preservation Associates on 6 July at 23CE393. Mr. Carver is a farmer residing near Owen's Mill.

Catton, Bruce
1981 Reflections on the Civil War. Doubleday and Company. New York.

Chapman, Carl H.
1975 The Archaeology of Missouri, I. University of Missouri Press. Columbia.

1980 The Archaeology of Missouri, II. University of Missouri Press. Columbia.

Edwards, John N.
1867 Shelby and His Men: or, The War in the West. Miami Printing and Publishing Company. Cincinnati, Ohio.

Evans, Oliver
1850 The Young Mill-Wright and Miller's Guide. The Thirteenth Edition with additions and corrections, by Thomas P. Jones. Lea and Blanchard. Philadelphia. Reprint Edition 1972 by Arno Press, Inc. New York.

Gibbon, John
1860 The Artillerist's Manual, Compiled from Various Sources, and Adapted to the Service of the United States. Reprint Edition 1971 by Greenwood Press. Westport, Connecticut.

Ingenthron, Elmo
1980 Borderland Rebellion: A History of the Civil War on the Missouri-Arkansas Border. Ozark Regional History Series, Book III, Kathleen Van Buskirk, Editor. The Ozarks Mountaineer. Branson, Missouri.

Jeane, Donald G.
1974 The Culture History of Grist Milling in Northwest Georgia. PhD dissertation on file, Louisiana State University. Baton Rouge, Louisiana.

Leffel, James
1881 Construction of Mill Dams. Reprint edition 1972 by Noyes Press. Park Ridge, New Jersey.

Linderer, Nanette M.
1977 The Architectural Survey. In The Downstream Stockton Study: The Cultural Resources Survey, by Donna C. Roper, Nanette M. Linderer and W. Raymond Wood. Pp 144-147. Report submitted to the Kansas City District, U.S. Army Corps of Engineers, by American Archaeology Division, Department of Anthropology, University of Missouri-Columbia.

Mahan, Dennis Hart
1861 A Treatise on Field Fortifications, containing instructions on the methods of laying out, constructing, defending, and attacking intrenchments, with the arrangement, the attack and defence of permanent fortifications. Third Edition. John Wiley and Sons. New York.

McElroy, John
1909 The Struggle for Missouri. National Tribune Co. New York.

McGimsey, Charles R. III and Hester A. Davis (editors)
1977 The Management of Archeological Resources: The Airlie House Report. Special Publication, Society for American Archeology.

Meyer, Duane
1970 The Heritage of Missouri - A History. State Publishing Company, Inc. St. Louis, Missouri.

Missouri Division of Geological Survey and Water Resources
1967 Mineral and water resources of Missouri. Report of the U.S. Geological Survey and the Missouri Division of Geological Survey and Water Resources. Volume 43, Second Series.

Missouri Office of Historic Preservation
1978 Guidelines for Contract Cultural Resource Survey Reports and Professional Qualifications. Department of Natural Resources, Historic Preservation Program. Jefferson City, Missouri.

Monaghan, Jay
1955 Civil War on the Western Border, 1854-1865. Little, Brown and Company. Boston, Massachusetts.

Moore, John C.
1899 Missouri. In Confederate Military History, edited by Clement Evans. Confederate Publishing Company, Atlanta, Georgia.

Nordyke and Marmon Company
nd A Catalogue of Buhr Stone and Roller Grinding Mills. Indianapolis, Indiana.

Payne James E.
1930 The Taking of the Liberty Arsenal. In The Confederate Veteran, Volume XXXVIII, No. 1.

Reed, Richard J.
1983 Personal Communication to David Quin of Historic Preservation Associates on 10 July at 23SR1044. Mr. Reed is the former landowner and local historian residing in Stockton, Missouri.

Savage, Bill
1983 Personal Communication to David Quin of Historic Preservation Associates on 6 July at the Soil Conservation Service office. Mr. Savage is the District Conservationist for Cedar County.

Shoemaker, Floyd C.
1959 Cedar County: Land of mineral springs and flowing streams, Ozark Highlands and rolling prairies. Missouri Historical Review 53:329-336. The State Historical Society of Missouri, Columbia.

1960 Osceola, land of Osage River lore. Missouri Historical Review 54:327-334. The State Historical Society of Missouri, Columbia.

Sprunk, Larry J. and Carla M. Hendrickson
1980 Historical Resources Mitigation, Volume I. We Remember the Rivers: An oral historical survey of the Harry S. Truman Dam and Reservoir Project, Missouri. Report submitted to the Kansas City District, U.S. Army Corps of Engineers, by Historical and Archaeological Surveys, Inc. Garrison, N.D.

Synhorst, Curtis H.
1982 Cultural Resources Survey, Harry S. Truman Dam and Reservoir Project, Volume II. Historic Resources Historical Gazeteer and Mitigation Recommendations. Report submitted to the Kansas City District, U.S. Army Corps of Engineers, by Historical and Archaeological Surveys, Inc. Garrison, N.D.

U.S. Army Corps of Engineers
1978 Preliminary Evaluation of the Richard Reed Site. Manuscript on file, Kansas City District, U.S. Army Corps of Engineers.

Watson, E.B. and H.F. Williams
1911 Soil Survey of Cedar County, Missouri. U.S. Department of Agriculture in cooperation with the University of Missouri Agricultural Experiment Station. Government Printing Office, Washington.

GLOSSARY

Battery: a Civil war military unit which consisted of as many as 6 pieces of artillery.

Bagger: a mill machine which packs processed grain.

Biface: any whole or fragmentary stone (usually prehistoric) tool which exhibits chipping or retouch on both faces.

Buhr stone: a siliceous rock prepared for use in milling.

Chops: coarsely ground (cracked) corn used primarily to feed stock.

Component: a portion of an archeological site which is unique in the traits exhibited or the time period represented.

Cogs and pins: a series of wooden pins which are used to connect a driveshaft to its power source. Also known as bevel gears.

Day book: a journal used to record business transactions.

Desheller: a machine consisting of two rotating plates studded with iron points that shells corn.

Ecotone: a transition area between two adjacent ecological zones.

Elevator buckets: containers attached to a continuous belt which convey grain through the mill.

Fall: the downward slope of a stream.

Freshet: a great rise or overflowing of a stream caused by heavy rains or melted snow.

Gristmill: a mill for grinding grain.

Head: a mass of water in motion or kept in reserve at a height.

Millstones: a set of stones used to grind grain. The upper (runner) stone revolves over a stationary bedstone.

Planing mill: a machine in which wood is made smooth and level.

Primary deposits: artifacts and other cultural materials which are discarded at the their place of use.

Secondary deposits: artifacts and other cultural materials which are transported away from their place of use for discard.

Sluiceway: an artificial channel which directs water to the mill wheel.

Trace: two chains or straps which connect a horse's harness to the vehicle being drawn.

Watershed: an area which drains into a particular watercourse or body of water.

Wheel race: a narrow channel which uses a strong current to turn the wheel which powers a mill.

PROJECT PARTICIPANTS

ROY J. COCHRAN, JR. authored various sections of the report, aided in much of the basic research and fieldwork and assisted in general report preparation. Mr. Cochran received an M.A. degree in anthropology in 1979 from the University of Arkansas and a B.S. in computer science from the University of Arkansas in 1983. Mr. Cochran is a professional archeologist registered by the Society of Professional Archeologists with research experience in Missouri, Arkansas, Louisiana and Alabama ranging from records checks to mitigation efforts.

TIMOTHY C. KLINGER served as the Principal Investigator for the project, participated in the fieldwork and authored various sections of the report. Mr. Klinger received an M.A. degree in anthropology in 1977 from the University of Arkansas and a J.D. from the University of Arkansas School of Law in 1982. Mr. Klinger is a professional archeologist registered by the Society of Professional Archeologists and is an attorney at law licensed by the State of Arkansas. Mr. Klinger has research experience in Michigan, New Mexico, Missouri, Louisiana, Kentucky and Arkansas on projects covering all aspects of cultural resource management.

DAVID C. QUIN participated in the fieldwork, conducted documentary research and contributed to the report. Mr. Quin received a B.A. degree in anthropology from the University of Arkansas in 1976 and is currently working toward an M.A. in anthropology from the University of Arkansas. Mr. Quin's primary research interests are Civil War history and reenactments in both Missouri and Arkansas.